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# LOGISTIC SUPPORT IN THE VIETNAM ERA

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VOLUME III

## MONOGRAPH SUMMARIES AND RECOMMENDATIONS

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A REPORT  
BY THE JOINT LOGISTICS REVIEW BOARD

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PAUL H. RILEY  
Deputy Assistant Secretary of Defense  
(Supply, Maintenance & Services)

# LOGISTIC SUPPORT IN THE VIETNAM ERA

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## VOLUME III

### MONOGRAPH SUMMARIES AND RECOMMENDATIONS

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A REPORT  
BY THE JOINT LOGISTICS REVIEW BOARD

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## PREFACE

This volume presents, in a single document, the summary chapters of the 18 monographs of the Joint Logistics Review Board report. Each monograph contains a description of a logistic functional or commodity area as it evolved during the 1965 to 1970 period and provides sufficient analysis to support the Board's conclusions and recommendations. Each of the 18 summary chapters contains a brief overview of pertinent historical and descriptive information and presents the significant lessons learned and recommendations for each functional or commodity area. The Appendix to this volume lists all 261 recommendations contained in the monographs.

Volume I, Summary Assessment With Major Findings and Recommendations, contains 15 findings and 46 recommendations that the Board considers most worthy of high-level attention and implementation. Some of the findings represent a synthesis of lessons learned from more than one monograph. This volume also includes a condensed assessment of the logistic systems reviewed in Volume II.

Volume II, A Review of Logistic Support in the Vietnam Era, the third major element of the Board report, provides a comprehensive description of the environment, logistic systems and posture, and events and changes that occurred during the period of 1965 to 1970. To permit comparisons, the volume is oriented primarily along Service lines. The most significant lessons learned are listed in the final chapter of Volume II.

# **1. ADVANCED BASE FACILITIES MAINTENANCE SUMMARY**

## **ADVANCED BASE FACILITIES MAINTENANCE SUMMARY**

### **1. OVERVIEW**

a. The review of facilities maintenance has included a wide variety of important support and services performed under the functions variously described as repairs and utilities, public works, base maintenance, facilities engineering, and facilities maintenance. The importance of these functions was especially great in the Vietnam conflict because of the relative stability of the main base areas, the large number of outlying bases, the underdeveloped nature of the Republic of Vietnam, and the frequency of damage to facilities from enemy action.

b. The problems pertaining to base maintenance varied between the Services and their assigned responsibilities.

(1) The Army placed overwhelming reliance on contractors to provide facilities maintenance, since adequate capabilities could not be provided without the callup of Reserves. Although adequate support was provided by contract, many problems existed with contract administration, with provision of Government-furnished material and facilities for the use of the contractor, and with transportation priorities.

(2) The role of the Navy in facilities maintenance had not been foreseen. It was found necessary to provide some organic capability for facilities maintenance in support of the scattered bases involved in inshore and river operations. The greatest impact resulted from the long-term deployment of Marines to the I Corps Tactical Zone and the assignment of support responsibilities to the Navy. Though not a part of the original tasking, facilities maintenance functions within the major enclaves were added, first in support of the Marines and then later as tasked for the other Services, along with responsibility for maintaining the outlying airstrips in the area. The requirements were met by a combination of military and contractor capabilities.

(3) Facilities maintenance of air bases by the Air Force proceeded more nearly as planned. The responsibilities were accommodated by initial temporary duty deployment of base civil engineer personnel, later augmented by Prime BEEF (Base Engineer Emergency Forces) maintenance teams and Rapid Engineer Deployable Heavy Operations Repair Squadrons, Engineer (RED HORSE) construction squadrons, which were augmented by local hires.

c. One of the major problem areas was related to equipment that was, in many cases, obsolete or poorly designed for the tasks to be performed in Vietnam. A particular source of difficulty was electrical power, the demands for which far exceeded previous experience. Extraordinarily difficult repair problems were associated with the multitude of makes and models of generators.

d. In addition to providing normal maintenance, facilities maintenance forces (military and contractor) proved invaluable, particularly in the early stages, in providing emergency construction of small, urgently needed facilities. The low dollar constraint on such projects was a serious handicap.

e. Despite deficiencies and all the difficulties encountered, the record shows that both military personnel and contractors performed creditably in satisfying the needs of facilities maintenance in the combat environment of Vietnam.



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f. The succeeding paragraphs summarize the chapters of the monograph that led to conclusions and recommendations. Each chapter summary contains a brief synopsis that highlights the major lessons learned. This is followed by the most significant recommendations that resulted from an analysis and evaluation of the material contained in the various chapters.

### 2. PLANNING AND READINESS

#### a. Lessons Learned

(1) During the early days of the RVN buildup, primary emphasis was necessarily directed toward the construction of facilities to support the large influx of troops. Consideration of the maintenance of facilities was thus relegated to a subordinate role, perhaps because the importance of such functions was not recognized.

(2) Planners for future contingencies must recognize the importance of facilities maintenance and must provide maintenance resources capable of satisfying those requirements essential to mission accomplishment.

(3) This study revealed a paucity of information regarding the early recognition of requirements pertaining to the maintenance of facilities. The recognition and development of such requirements to a higher level of visibility during the early stages of the base development planning process would do much to enhance the performance of the facilities maintenance function in any future contingency.

#### b. Recommendation

(BM-1) Facilities maintenance requirements and adequate resources to fulfill such requirements be identified in the base development plans of logistic annexes to contingency plans. This could be accomplished by modifying the Joint Chiefs of Staff Memorandum, SM-643-69, subject: Instructions for Base Development Planning in Support of Joint Contingency Operations, 1 October 1969, to ensure that the following are considered:

(a) Assignment of responsibility for facilities maintenance.

(b) Facilities maintenance resources required to implement the planned facilities maintenance program. These resources include the facilities, maintenance forces (troops, contractors, and local and third-country nationals), and material and equipment to accomplish the facilities maintenance requirements.

(c) Plans for concurrently increasing facilities maintenance forces commensurate with the increase of facilities acquired during the escalation of a contingency operation.

### 3. ORGANIZATION AND BUILDUP OF CAPABILITIES

#### a. Lessons Learned

(1) The Services were adversely affected by an inadequate continental United States (CONUS) training base in facilities maintenance skills. Strict interpretation of the Department of Defense directive pertaining to the use of military personnel in maintaining CONUS facilities had hindered the development of sufficient resources. As a consequence, the numbers of military personnel in the active military forces who were qualified to perform such functions were grossly inadequate for the tasks that developed.

(2) Most of the Army and Navy personnel qualified in this type of work were in Reserve units. The decision not to implement a general mobilization necessitated the use of contractor forces to accomplish a large portion of the facilities maintenance function.

(3) There were certain advantages in the use of contractor forces. The contractor had a greater degree of success in direct recruitment of personnel than the Services were able

to achieve through utilization of the normal civil service channel. The contractor was not subject to the personnel ceilings imposed on the Services; thus he possessed a greater flexibility in expanding to meet increased requirements in a minimum time frame.

(4) These advantages of contractor forces were accompanied by some disadvantages. Principal among these were the need for military maintenance units at outlying bases and the matter of continuity of essential operations. During periods of tension, such as the civil disorders of 1966 and the Tet Offensive of 1968, many employees could not report to work because of the curfews established by the local Government. This fact alone substantiates the requirement that there must be a nucleus of qualified military personnel to provide supervision and continuity of essential operations during such periods. It must be assumed that in future conflicts, despite the Republic of Vietnam experience, the enemy may be able to successfully attack installations from which support services, such as facilities maintenance, are provided. Therefore, the use of a completely civilianized force to provide such services would be infeasible.

(5) When one considers such services as electrical power generation and distribution and water for messing, drinking, and sanitation purposes, both of which are provided by the facilities maintenance forces, it is quite apparent that continuity of these essential services is of prime importance. Even in the major enclaves, total dependence on civilian personnel who were subject to local laws and military restrictions proved to be ineffective. Consequently, base development planners should consider two alternatives, i. e., a total military force or a military and civilian mixed force, as the situation dictates.

b. Recommendations

(BM-2) The Services provide a sufficient number of military personnel trained in facilities maintenance functions in their active duty structure to provide an adequate nucleus to support contingency operations. The Air Force Prime BEEF concept is one method of accomplishment.

(BM-3) Facilities maintenance forces utilized in contingency operations be tailored to ensure continuity of vital operations, such as power generation, water supply, battle-damage repair, fire fighting, environmental control of critical electronic systems, and maintenance of critical POL facilities. This tailoring of forces in the enclave areas in a contingency such as Vietnam should provide for a nucleus of military personnel to conduct essential functions during the absence of assigned civilian and/or contractor personnel as a result of civil unrest, labor strikes, or enemy activities and to ensure adequate management and supervision of the facilities maintenance functions. In forward areas, where facilities maintenance forces are subject to substantial interruption by enemy actions, these forces should consist primarily of military personnel in organized facilities maintenance units, such as Prime BEEF, Construction Battalion Maintenance Units, or Utility Detachments.

(BM-4) Planning for contingency operations consider utilization of civilian and contract facilities maintenance personnel to the maximum extent feasible. When utilization of facilities maintenance contractor(s) is specified, applicable plans should address the following:

- (a) The size of the contractor force to be employed.
- (b) The number of contractors proposed for employment.
- (c) The assignment of responsibility for contract management, supervision, and administration.
- (d) The locations contemplated for assignment to the facilities maintenance contractors.

#### 4. STATUTORY AND REGULATORY CONSTRAINTS

##### a. Lessons Learned

(1) The statutory limitations on the use of operations and maintenance funds for minor new construction projects were unduly restrictive and were not compatible either with the construction cost escalation that had occurred since the legislation was enacted in 1956 or with the requirements of a combat zone.

(2) Of particular interest was the statutory requirement that prior notification must be furnished the Congressional Armed Services Committees before restoring or replacing facilities in a combat zone that have been heavily damaged or destroyed as the result of hostile or other action.

(3) It was necessary to negotiate service contracts because of the difficulties encountered in recruiting qualified facilities maintenance workers through the civil service process and the necessity to stay within established personnel ceilings. Strict application of the Armed Services Procurement Regulations provisions relating to personal services aspects of service contracts was impracticable in a combat environment.

(4) With respect to the matter of contract management, the sheer magnitude of the task dictated that engineer elements of the Services become deeply involved in management and supervision of contractor forces.

##### b. Recommendations

(BM-5) The Office of the Secretary of Defense sponsor legislation (10 USC 2674) to increase the statutory limitation for operations and maintenance funded minor new construction projects to at least \$50,000.

(BM-6) The Office of the Secretary of Defense sponsor legislation (10 USC 2673) to permit the delegation of approval authority to appropriate command levels to replace or restore facilities that have been damaged or destroyed by hostile action or natural calamity in a combat zone. Further, the provisions requiring prior notification of the Armed Services Committees of the Congress in those instances be deleted.

(BM-8) The provisions of the Armed Services Procurement Regulation, Section 22, be amended by the Office of the Secretary of Defense to specifically permit the utilization of personal services contracts in a combat zone subject to approval by the responsible component commander.

#### 5. RESPONSIVENESS AND EFFECTIVENESS OF FACILITIES MAINTENANCE

##### a. Lessons Learned

(1) The execution of the facilities maintenance function in the Republic of Vietnam was plagued from the beginning with shortages of equipment and repair parts. Such shortages were attributable, in part, to a low priority placed on facilities maintenance matters, to the inability to forecast requirements to meet future needs because of the rapidly escalating force structure to be supported, and to the proliferation of makes and models of equipment such as electrical generators, engineer construction equipment, and materials handling equipment.

(2) The primary problems caused by the proliferation of makes and models were the lack of interchangeability of parts and the inability of supply systems to provide repair parts for low density equipment in a timely fashion.

(3) Reduction of the multiplicity of makes and models of equipment should be accomplished to the maximum feasible extent throughout the Services. Owing in large part to the urgency of the requirement in the early buildup period of any future contingency, it can be assumed that

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equipment from all sources will be assembled and shipped, as it was for the Republic of Vietnam, to the objective area. Such actions, although necessary, cause many problems if some degree of standardization has not been achieved.

(4) In addition, utilization of the minor construction capabilities of organic facilities maintenance forces by those commanders fortunate enough to have such forces enabled them to obtain urgently needed facilities in a time sensitive manner.

#### b. Recommendations

(BM-10) The Services, through the Joint Logistics Commanders, make a determined effort to reduce the multiplicity of makes and models of equipment used in support of the facilities maintenance program. (See Chapter IX, Construction Monograph, and recommendations contained in Chapter VII, the Supply Management Monograph.)

(BM-11) The review of standards and planning factors by the Construction Board for Contingency Operations include standards and planning factors for utilities systems; the Board place emphasis on research and development in the area of package utilities systems for the generation of electric power, production of potable water, and sewage disposal; and the Services ensure that such package systems are included in stocks of war reserve material.

## **2. AMMUNITION SUMMARY**

## AMMUNITION SUMMARY

### 1. OVERVIEW

a. Ammunition expenditures grew to unprecedented levels during the Vietnam conflict. This was partly due to the nature of the war itself, with combat actions not only scattered throughout the Republic of Vietnam but also extended to interdiction of the lines of supply in North Vietnam and Laos. The extraordinary increase in expenditure of air munitions over any previous experience stemmed from the employment of modern high performance aircraft capable of delivering large quantities of munitions at high sortie rates. It is to the credit of the ammunition logistic systems that these high requirements were so well met, particularly in view of difficulties associated with frequent periods of marginal asset positions of many types of ammunition during the Vietnam conflict.

b. At the start of the buildup, the quantity of assets on hand in relationship to approved inventory objectives appeared to be relatively favorable for most categories. However, this was somewhat misleading for several reasons:

(1) Only the Army was authorized D-to-P stocks—the amount required to sustain operations from the onset of hostilities to the time when production equaled consumption—however, this complete authorization was never funded.

(2) Large percentages of the assets were obsolescent munitions left over from the Korean War. This was particularly true for bombs, in which a very low percentage was the streamlined bombs desired for external carriage by jet aircraft.

(3) Military planners did not envision the delivery of conventional bombs by B-52's in large-scale, sustained operations.

(4) In some cases requirements forecasting based on the experience of previous wars resulted in low estimates. A particular case in point is naval gunfire, in which the munition expenditures far exceeded any previous estimates.

c. The ammunition production base had declined significantly since the Korean War and difficulties were encountered in its activation and augmentation. Contributing factors were inadequate technical data packages, the step-by-step decisions based on deployment of forces, and the poor overall conditions of plant equipment. A further complication was that mobilization agreements that had been negotiated with private industry proved mainly ineffectual in that no national mobilization was enforced for the Vietnam conflict.

d. A number of other factors combined to complicate the marginal asset situation. One was the escalation of the war effort and a strategy of graduated military actions that combined with the inherent time lags of production and transportation often kept the supply of ammunition well behind the power curve. Another was the large fluctuation in ammunition expenditures. Expenditures of air munitions varied as a result of weather, enemy action, and targeting, but in an overall sense were relatively stable. Expenditures of some types of ground and ship gun ammunition were marked by wide variations. A third factor was the peacetime fiscal policy of minimizing near-term expenditures with lesser emphasis on long-term implications. A fourth stemmed from a concern over the possibilities of excesses at the end of the war. Constraining production programs essentially to combat and training expenditures, even in cases where world-wide stocks were well below objectives, provided little cushioning against surges and emergencies.

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e. No major operations were canceled. The required degree of support of these operations was achieved through intensive management of ammunition within the Services, use of expenditure controls in critical situations, and transfer of assets between the Services as directed by the unified commander in cases of serious short supply. Notwithstanding these actions there were prolonged periods in which expenditures of certain types of ammunition were asset limited, and during the spring of 1966 a number of air sorties in Vietnam were suspended. It was necessary, at times, to utilize premium air shipments and to take other extraordinary actions to ensure the availability of the required munitions. In some instances, substantive transfers of ammunition from other forces and other areas of the world were necessary, with accompanying degradation of readiness in these areas.

f. The marginal asset situation, fluctuations in expenditures, and frequent changes in inventory objectives resulted in unusually detailed control of production schedules at high levels in the Department of Defense and frequent, sometimes costly, changes in production rates.

g. At the start of the buildup, the peacetime ammunition information systems were inadequate for modern wartime needs. All the Services developed systems well suited to the management of ammunition under dynamic conditions of warfare. This greatly facilitated sound management and command decisions.

h. The preceding paragraphs have provided a brief overview of the ammunition situation as it developed in the Vietnam era. The detailed review in this monograph focused attention on four primary topic areas for in-depth review and analysis:

- (1) Ammunition support during the Vietnam conflict
- (2) Generation and control of ammunition programs
- (3) Procurement and production of munitions
- (4) Pacific theater distribution and support operations.

The major lessons learned and the more significant recommendations are grouped under these headings.

## 2. AMMUNITION SUPPORT DURING THE VIETNAM CONFLICT

### a. Lessons Learned

(1) The experience during the Vietnam era, as in other wars, has clearly demonstrated that ammunition requires constant command attention and specialized management by technically qualified officers closely coupled with operations and operational planning, and, further, that special attention is required to keep ammunition logistic systems in readiness for immediate response to contingency requirements.

(2) Although continuing adjustments of the flow of ammunition to the combat area are required, taking into account actual expenditures and trends, allowances must be made for major fluctuations in ammunition expenditures under dynamic warfare conditions. The inventory objectives in the theater of operations and in the continental United States should be sufficiently high to provide for such fluctuations and for emergencies. Adequate allowance for surges in expenditure and stable worldwide inventory objectives are required for sound and economical management, thereby minimizing the need for uneconomical measures such as premium transportation, inefficient variations in production, and transfers from other areas of the world.

### b. Recommendations

(AM-4) Commanders with ammunition logistic responsibility in time of war retain a nucleus staff capability in peace and the Services plan to augment key staffs with qualified ammunition logisticians promptly at the start of a contingency.

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(AM-1) In addition to a normal pipeline to replenish actual ammunition expenditures, the Services be authorized to maintain a level of national assets in support of combat sufficient to respond to emergencies and surges.

#### 3. GENERATION AND CONTROL OF AMMUNITION PROGRAMS

##### a. Lessons Learned

(1) Experience during the Vietnam era reaffirmed the validity of the D-to-P concept, whereby inventory levels are based on the quantities required to sustain operations from the onset of hostilities to the time when production equals consumption.

(2) All the Services developed sound procedures to determine ammunition requirements to support the Vietnam conflict. These procedures should be continually updated with full recognition of the fact that experience has not been gained with certain types of ammunition, other warfare situations, and different types of usages.

(3) When program guidance was changed as a result of budgetary considerations, valid requirements often tended to become confused with the authorized inventory objectives at the time. The confusion of valid requirements with authorized inventory objectives is dangerous with respect to the evaluation of acceptable risks and has adverse effects on long-range program planning.

(4) All the Services developed effective ammunition reporting systems well adapted to fulfilling the needs of command and management under conditions of dynamic warfare. In a peacetime environment, special steps will be required to ensure the continuing readiness of these systems.

##### b. Recommendations

(AM-6) When the Services have established what they consider to be valid requirements for ammunition inventory objectives, care be taken that these continue to be identified as requirements regardless of program and budget decisions.

#### 4. PROCUREMENT AND PRODUCTION OF MUNITIONS

##### a. Lessons Learned

(1) The Vietnam experience emphasized the importance of maintaining an adequate production base, developed and maintained in consonance with the D-to-P concept. An adequate production base related to the D-to-P concept is especially critical for ammunition, as the production of ammunition requires facilities and processes in many respects unique and greatly different from normal domestic manufacturing processes.

(2) Unless emergency actions are taken at the national level, mobilization agreements with private industry are relatively ineffectual. Thus, lacking mobilization, extraordinary steps must be taken to activate and augment ammunition production promptly at the start of an emergency.

(3) Increasing the Service Secretarial approval authority from the \$1 million level currently authorized in Department of Defense Directive 4275.5 to \$5 million would have permitted the Secretary of the Army to approve 88 percent of the number of facilities projects initiated during FY 66 through FY 69, while retaining at the Secretary of Defense level the approval authority of 62 percent of the dollars.

(4) Peacetime administrative controls were continued and in some instances tightened. Peacetime procedures were too time consuming to be responsive to the exigencies of the wartime situation and forced munitions procurement agencies to adopt shortcut procedures such as the extensive use of letter contracts, option clauses, and noncompetitive procurements.



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(5) The current assignments to the military departments of responsibilities for procurement and production of ammunition can be streamlined. For example, there does not appear to be any reason for the Army to be charged with production of bombs to be used only by the Air Force while the Navy is producing bombs that require closely related facilities.

#### b. Recommendations

(AM-12) The approval authority of the Secretaries of the military departments for facilities projects pertinent to establishment or expansion of the production base, as set forth in Department of Defense Directive 4275.5, be increased from \$1 million to \$5 million.

(AM-9) In recognition of the absence of necessary lead time in war for awarding follow-on munitions contracts, the military departments identify those items to be procured from sole source producers. These items be exempted from mandatory competitive procurement during a contingency, with the understanding that competition will be introduced when the exigencies of the situation will permit.

(AM-14) The military departments initiate a joint review of ammunition procurement and production responsibilities for purposes of recommending changes to Department of Defense Instruction 4115.1, including adjustments in existing capability through transfer of facilities as required. Action be taken to consolidate general-purpose bomb responsibilities under the Navy, removing the Army from involvement in an item it does not employ. Other items that should be reviewed to determine the feasibility of single Service assignment are incendiary bombs, projectile fuzes, explosives, and small arms ammunition.

### 5. PACIFIC THEATER DISTRIBUTION AND SUPPORT OPERATIONS

#### a. Lessons Learned

(1) The Vietnam conflict demonstrated the necessity for retaining current ammunition outloading ports on both the east and the west coasts capable of expanding to meet contingency operations. (A recommendation on modernization of all ports, to include container-handling facilities is contained in the Transportation Monograph recommendation (TR-6).)

(2) The port congestion experienced in Vietnam created delays in delivery of ammunition and attendant explosive hazards. Significant advantages are to be gained from containerization of ammunition that is to be shipped to an overseas point. Furthermore, the trend is to utilize container ships for the vast majority of ocean transportation overseas. There is an urgent need to develop containerization concepts for ammunition and to provide suitable capabilities at both the outloading ports and the offloading points overseas.

(3) Special attention is needed to ensure the early provision of adequate storage for ammunition in a combat area. Instances of costly loss of ammunition and extensive damage to adjacent facilities highlight a requirement for more meaningful criteria for siting and layout of ammunition storage areas in a combat zone. Special safety criteria are required for ammunition storage to assist commanders in making tradeoff decisions concerning the probabilities of loss and damage due to enemy action.

(4) The lack of timely availability of a sufficient cadre of ammunition logistic personnel of requisite grades and skills to accompany the entry of combat forces into Vietnam seriously degraded overall in-country ammunition support during the early years of the conflict.

#### b. Recommendations

(AM-15) The military departments maintain the current ammunition outloading facilities on both the east and the west coasts adequate for planned contingencies, giving continued emphasis to the maintenance of adequate explosive safety zones at existing ammunition outloading ports.

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(AM-16) The Services vigorously pursue existing programs and projects for the development of containerization systems and related concepts for the delivery of ammunition to a theater of operations, including container ship discharge in the stream.

(AM-17) The Services, through the Joint Logistics Commanders and in coordination with the Armed Services Explosive Safety Board, develop specific criteria for the storage of all types of air and ground munitions in a combat zone. These criteria would guide the commanders in establishing construction standards for ammunition facilities (including covered storage) and should include quantity-distance risk probabilities for use in arriving at decisions on waivers.

(AM-19) The Services maintain a viable career program with supporting training base to identify a cadre of ammunition logistic personnel of requisite grades and skills to ensure the availability of ammunition logistic support personnel in accordance with contingency plans.

### **3. AUTOMATIC DATA PROCESSING SYSTEMS SUMMARY**

## **AUTOMATIC DATA PROCESSING SYSTEMS SUMMARY**

1. **OVERVIEW.** Automatic Data Processing Systems had an important impact upon logistic support in the Vietnam era both in-country and in the continental United States (CONUS). By 1 January 1965, each of the Services and the Defense Supply Agency (DSA) had computerized their basic logistic operations in CONUS.

a. Initial operations in Vietnam involved in the use of manual systems for in-country support. The interface between these systems, which relied heavily upon punch card operations, and the more computerized wholesale systems, posed difficulties until further in-country mechanization was introduced. The Services varied in time of introduction of in-country computers, with the Marine Corps providing the earliest computers in 1965.

b. The increasing workloads associated with Vietnam placed added stress on existing logistic support systems, and the Services frequently upgraded their computer configurations in varying degrees, through either higher capacity central processing units or increases in peripheral equipments.

c. Major changes in the overall logistic support and Automatic Data Processing Systems of the Services and the Defense Supply Agency have occurred since the start of Vietnam operations. Some of these were caused by the implementation of the Military Standard Systems directed by the Secretary of Defense. Others were improvements by one Service or the Defense Supply Agency which were also applicable to the others, such as the DSA Defense Automatic Addressing System. Some changes were internal to a Service and interactive with another, such as the Air Force Stock Number User Directory System that interacts with the Defense Automatic Addressing System.

d. Logistic Automatic Data Processing Systems in development by the Services and the Defense Supply Agency reflect the lessons learned during the Vietnam era. Thus, new systems will tie together a wider spectrum of related processes operating under standardized procedures. Automatic system features will permit the computer to make routine recurring decisions involving high volume, repetitive functions based on rules described by logistic personnel, thus freeing managers to concentrate on more significant problems. Rapid information retrieval will reduce the necessity for voluminous periodic paper reports. Accuracy of basic recurring information will be enhanced by more checks and balances and by less human intervention in the transfer of information. In using data for management purposes, however, there will be a need for its programmed consolidation to provide the summary data required on a uniform time basis and at the requested intervals.

e. A substantial expansion occurred during the Vietnam era in the use of Automatic Data Processing and in ADP-oriented information systems as an aid to logistics management. This occurred at many command levels and across many logistic functions.

f. In view of the limited time available, the Joint Logistics Review Board team selected for review major Services/Defense Supply Agency wholesale logistic systems making extensive use of Automatic Data Processing support as representative of the problems involved and solutions effected. These systems are amplified in appendixes to this monograph and significant factors are incorporated into the monograph chapters.

g. Even though Service logistic systems supported by ADP have basic requirements and differences stemming from different missions, environment, and their modes of operation, many

of the lessons learned and related system improvements are similar. Many variations are a matter of scope based on the size of the system and on the stage of actual development toward mature systems.

h. There has been a trend toward more interfaces among logistic Automatic Data Processing Systems to accommodate within a single overall design structure many important segments that were formerly handled individually. For example, the Marine Corps' Unified Materiel Management System (MUMMS) incorporates information related to supply, financial, procurement, technical data, and maintenance areas.

i. The growth of large-scale integrated and standardized Automatic Data Processing Systems, with the use of advanced computer technology, has fostered a discipline of design, programming, system maintenance to accommodate changes, and related procedures and techniques that can most effectively occur in central design activities. These activities involve personnel who possess the proper skills to accomplish the diverse tasks associated with the creation and operation of Automatic Data Processing Systems, and who can facilitate participation by logistics management personnel.

j. During the Vietnam era, extensive efforts have been put forth and many improvements realized in automatic data processing support of logistics, and this is reflected in the increased application of Automatic Data Processing Systems by the Services. Generally speaking, the systems in effect today in the areas examined are providing adequate support to customers, and those systems implemented or improved during the Vietnam era, as well as those now in development, reflect the lessons learned. However, even more effective support is achievable through increased response and overall economy by the further application of the following approaches, which are addressed as major issues in the monograph.

- (1) Introduction of ADPS capability with proven systems into the theater as soon as possible.
- (2) Centralized design and development of systems having wide applicability.
- (3) Increased functional manager and command involvement in systems development.
- (4) Increased interservice coordination through the establishment of libraries of programs of wide applicability within each Service and the Defense Supply Agency.

k. The most important lessons learned identified in each issue area, together with the recommendations developed by the Board, are presented in the following paragraphs.

## 2. MAJOR ISSUES

### a. Lessons Learned

(1) One of the major lessons learned during the Vietnam era was the need in-theater for adequate Automatic Data Processing Systems as soon as possible after the initial deployment to provide the means for maintaining asset records, to ease the problem of requisitioning on the wholesale system, to control stock levels, to furnish responsive issues to customers, and to manage maintenance operations. In order for these Automatic Data Processing Systems to be effective, they must include proven programs and trained personnel, as well as adequate ADP and data transmission equipment in transportable modules.

(2) There has been an increase in centralized design of logistic Automatic Data Processing Systems of wide applicability to conserve the funds, skills, and manpower available; to ensure desired uniformity among users; to provide for interface of programs; and to ensure that policies of management are provided for adequately. Centralized agencies have been established within the Services, for example, for wholesale and retail level design. These design groups can ensure compatibility of systems between levels and facilitate their use on a worldwide basis.

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(3) Maximum participation and mutual understanding among functional managers and ADP development personnel are essential to ensure the proper application of computers to logistic systems and to exploit the potential of advancing computer technology. Functional managers and commanders must make their requirements understandable to ADP systems design personnel for effective translation into Automatic Data Processing Systems, and ADP personnel must ensure that these systems accurately reflect the requirements. Definitive guidelines such as those in Army Materiel Command Regulation 18-12 can assist in this process. For large systems, 1,000 man-years of skilled effort may be required to provide an initial prototype for a standard Service system. Commitment of resources to this extent dictates that managers and commanders at all levels must be knowledgeable of the capabilities and the limitations of computer applications and must participate in the basic decisions for system design.

(4) A degree of interservice coordination exists by the informal exchange of information among personnel associated with Automatic Data Processing support of logistics. However, greater interservice coordination on a formal basis could be more effective. The establishment and operation of computer program libraries within the Services and the Defense Supply Agency would enhance such coordination. The Office of the Secretary of Defense has established an Automatic Data Processing Policy Committee to furnish advice to the Assistant Secretary of Defense (Comptroller) on the Automatic Data Processing management program. Each Service is represented by a senior official, and the committee can establish task groups as may be required to facilitate the resolution of matters before the committee. This policy committee appears to be an excellent mechanism to monitor the development of Services/Defense Supply Agency computer program libraries.

### b. Recommendations

(DP-1) For contingency operations each Service have available Automatic Data Processing Systems packages compatible with the continental United States system with which they must interface. These Automatic Data Processing Systems packages should include mobile Automatic Data Processing equipment, proven programs, data transmission equipment, and trained personnel, and must be so designed that they can be readily expanded to meet unforeseen requirements without major problems in translation to greater capacity. Contingency plans should provide for early deployment of an Automatic Data Processing Systems package adequate to meet forecasted in-country logistics management requirements, with a reasonable safety factor to meet unforeseen demands.

(DP-2) Each Service and the Defense Supply Agency provide definitive Service-wide guidelines such as those illustrated in Army Materiel Command Regulation 18-12, August 1967, setting forth the responsibilities of functional managers, systems analysts, and programmers in the translation of logistic policies, objectives, and concepts into the design and development of automated logistic operational and management systems to increase their responsiveness to functional management requirements and permit the development of logistic concepts in consonance with Automatic Data Processing technology.

(DP-3) A joint Service/Defense Supply Agency task group be established by the Assistant Secretary of Defense (Comptroller) Automatic Data Processing Policy Committee to develop policies and procedures for the establishment of a central library of logistically oriented ADP programs within each Service and the Defense Supply Agency to facilitate exchange of programs within and among the Services and the Defense Supply Agency.

#### **4. COMMON SUPPLY SUMMARY**

## COMMON SUPPLY SUMMARY

### 1. OVERVIEW

a. Of the approximately 4 million integrated line items of supply in the Department of Defense inventory, slightly over 1.9 million are managed by the Defense Supply Agency, 69,000 by the General Services Administration, and 53,000 (from a total of 60,000 items) by the U. S. Army Tank Automotive Command. The items considered for common supply support fall within these integrated items.

b. The conditions under which common supply should be extended and the range of items that should be supported in this manner involve key decisions that require consideration of all the factors that influence the responsiveness, effectiveness, and economy of the resultant systems. Considerable experience has been gained in the application of common supply during the Vietnam era. This experience has been reviewed and analyzed to derive considerations and criteria of importance to future decisions in this area.

c. Among the facts and observations developed during this study regarding experiences of common item support in Vietnam, the following appear to be of greatest significance:

(1) Prior to the buildup, administrative and logistic support was provided to U. S. military advisors in Vietnam by the Navy as administrative agent to the Military Assistance Advisory Group. By 1 January 1965, support had been extended to the U. S. Military Assistance Command, Vietnam. This support included subsistence items, a list of common items that were primarily administrative and housekeeping in nature, and requisitioning services.

(2) The contingency plans of the Commander in Chief, Pacific, contained provisions for common supply to be furnished in Vietnam by the Army 180 days after activation of the plan. As events transpired, however, the contingency plans were modified with the result that common support was provided by the Navy in I Corps Tactical Zone and by the Army in the II, III, and IV Corps Tactical Zones. Although the plans of the Commander in Chief, Pacific, for introducing common supply into the combat area were eventually changed, they were basically sound.

(3) No single prescribed list of items to be supported through common supply existed in Vietnam. A list of some 3,500 items was developed by the Navy in 1965 and served as a starting point for both the Army and the Navy. Changes to the list were made from time to time, but none of the lists that were developed, where common use was a criterion, constituted more than a relatively small portion of the total line items stocked by the Services in Vietnam.

(4) To the extent that the performance of Service supply systems was affected by delays in construction of facilities, personnel deficiencies, and other in-country operating difficulties, common supply performance was equally affected. Further, common supply was inhibited by procedural problems and incompatibilities between Service supply systems. A constant issue has been whether common-service or cross-service funding would be used. Where common support was unsatisfactory, activities relied on their Service supply systems, making it more difficult for supporting activities to improve performance since they could not compile valid demand data and establish appropriate stock levels.

(5) Because of inadequate data, no economic yardstick is available to measure the savings or costs attributable to common supply in Vietnam.

d. The most significant facts and observations developed during this study concerning the common supply system recently implemented on Guam are as follows:



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(1) The system for support of common items as currently being operated on Guam is feasible. As to the degree of support that can be expected, it is believed that a satisfactory issue effectiveness can be maintained.

(2) Between Naval Supply Depot, Guam, and Andersen Air Force Base, there are 86,526 integrated items stocked on Guam. Over 5,000 of these items have been identified as common to both Services—8 percent of the total of the integrated item stocks.

(3) Based on only 4 months of experience, sufficient time has not elapsed for the operation to stabilize. The requisitioning volume from the Air Force is short of projections, and it is doubtful that the expected monthly volume of 5,000 will be reached. Of the 3,195 demands received, 2,464 issues were made from stock for an issue effectiveness of 77 percent.

(4) The increased workload costs and the added stock investment costs of some \$500,000 projected by Naval Supply Depot, Guam, have been increased. Common supply on Guam is resulting in an overall increase in workload, investment, and transportation costs.

(5) Problems have been encountered in the interface between the Air Force stock control system, which is highly mechanized, and Naval Supply Depot, Guam, system, which is partially mechanized. The automated data output by the Air Force computer of requisition modifiers, cancellations, or follow-up requests must be manually processed by Naval Supply Depot, Guam.

(6) Because of recent personnel cutbacks, there are indications that the ability of the supporting activity to cope with emergency requirements of its requisitioners may not be sufficiently timely even if the supporting activity has stock available.

e. A survey of 243,756 integrated items carried by large Army, Navy, and Air Force activities in Japan showed that only 2.5 percent were common to the three Services and the highest degree of commonality between two Services (Army/Navy) was 9 percent. This item profile compares closely with that found on Guam. Further, preliminary investigation indicates that time and distance factors will complicate common supply applications in Japan.

f. The information and observations gathered during this study concerning common medical supply is as follows:

(1) In 1968 the Army, in response to a request from the Office of the Secretary of Defense, conducted a Common Medical Supply Study to determine the most advantageous arrangement for providing medical materiel support for all Services in South Vietnam, Thailand, Korea, Japan, and Okinawa. The study sought to determine whether requisitions from all Services for common medical supplies should be routed through Army Medical Supply channels in Vietnam and Okinawa.

(2) The study resulted in no change to the existing support pattern in Vietnam, Thailand, and Japan, where each Service provides its own medical supply support. The Common Medical Supply System was adopted in Korea and Okinawa, with the Army depots in these two countries designated to support the installations of the other Services commencing in 1970.

(3) In brief, in Okinawa and Korea the study indicated that fewer requisitions will be forwarded to the continental United States, bulk shipments will increase, and the source of supply will be closer to the user. Conversely, an increased investment in inventory will be required, a net increase in operating costs will result, and personnel strengths will be modestly increased.

g. A considerable amount of support was provided through the use of Interservice Support Agreements. These agreements, essentially contracts specifying explicit responsibilities of and relationships between the command being supported and the supporting command, were flexible and could be altered on relatively short notice when conditions changed. Based on those

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agreements for which data are available, more than 900, with an estimated value of \$376 million, were in effect in the Pacific Command at the end of FY 69. Approximately 65 percent of these agreements were concerned with supply support.

h. The preceding paragraphs have provided a brief overview of common supply systems implemented during the Vietnam era. The two succeeding paragraphs summarize the lessons learned relative to the two issues addressed by the monograph: the application of common supply systems in overseas areas and the establishment of Defense Supply Agency distribution points overseas. The recommendations developed by the Board in the area of common supply are also presented.

## 2. CRITERIA FOR COMMON SUPPLY IN OVERSEAS AREAS

### a. Lessons Learned

(1) Common supply support of high-density items with predictable demand, such as subsistence and selected items of packaged and bulk petroleum, oil, and lubricants, was generally performed effectively in Vietnam. Evidence exists that other high-volume items used by two or more Services, such as selected items of construction material, could have been supplied more efficiently had common supply procedures been used (see Construction Monograph).

(2) The factors that affected the performance of Service supply systems in-country equally affected common supply performance. As a result, performance on housekeeping items and repair parts was varied and often unsatisfactory. Although contributing factors can be identified (e. g., insufficient trained personnel, inadequate automatic data processing equipment, and permissive requisitioning procedures), insufficient cost and performance data were recorded in Vietnam to permit valid evaluation of the relative effectiveness and efficiency of the common supply systems that were established in-theater.

(3) Preliminary indications are that the support of common items on Guam under the common system is satisfactory. It is resulting, however, in increased investment costs, additional workload, and other costs associated with common supply support, without evidence of significant economic benefits being realized. No justification is seen for extending common supply to include items used only by one Service.

(4) Trends in the reduction of overseas stockage, with increased reliance on airlift, improved communications, and developments in logistic distribution systems that exploit the application of containers in the movement and storage of supplies, will have considerable influence on the performance and economics of future common supply systems.

(5) Applications of common supply systems should be determined on a case-by-case basis after detailed analysis of the costs associated with increased investments, multiple processing of requisitions, additional handling, and transportation as related to supply responsiveness.

(6) Experience has shown that common supply offers an opportunity to provide effective and economical support of military activities overseas where it is limited to integrated management items that have high, stable, predictable demands, amount to large bulk and tonnage, and are used by two or more Services. Clear-cut examples of such items are subsistence, selected items of petroleum, oil, and lubricants, and common construction material.

(7) The Services should jointly develop a list of common supply items that indicates acceptable substitutes to be published in a common supply item catalog; jointly establish and agree to common supply and funding procedures; and require use of common supply as a normal procedure, wherever implemented.

(8) In combat or contingency situations involving joint operations, the commander of a unified command should select in advance the Service or Services to be responsible for common supply following the dominant user principle. As the commander of a unified command and as authorized by JCS Publication 2 (Articles 30603 and 30605), the Commander in Chief, Pacific's designation of common supply responsibilities in Vietnam followed this principle.

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(9) A prerequisite in contingency situations to efficient common supply support is lead time for implementation. The decision to implement must be firm and reached at an early date; however, in many fast developing situations, the phase-over to common supply may be programmed as late as 180 days from the date of the decision.

(10) Supply support of some military activities in a given geographical location where common supply has not been established can be accomplished through Interservice Support Agreements, a flexible means of making local support arrangements.

#### b. Recommendations

(CS-1) Common supply overseas be applied to a definitive list of items, substitutes included, jointly developed by the Services; that common supply be implemented with a jointly prepared set of common supply and funding procedures; that it be used as a normal procedure whenever implemented; that implementation in both peacetime and emergencies be at the direction of commanders of unified commands following the principles of JCS Publication 2, Section 6, in assigning responsibility for common supply to Services; that commanders of unified commands tailor implementations as to items to be supported, designate the Service or Services to provide such support, and schedule the phasing-in of common supply in times of emergency; and that the specific determinations made regarding common supply support during emergencies be included in appropriate contingency plans.

(CS-2) In jointly developing a catalog of integrated manager items to be supplied under common supply procedures, the Services categorize such items as follows:

(a) Category I—Items that have high, stable, predictable demands, amount to large bulk and tonnage, and are used by two or more Services in the overseas area being considered.

(b) Category II—Items that are used by two or more Services but do not meet the stable and high demand criteria of Category I.

(c) Category III—Items that are used by only one Service in the overseas area being considered.

(CS-3) When jointly deciding whether integrated manager items should be included in a common supply system, the Services utilize the following decision rules:

(a) All Category I items should normally be included in the common supply system.

(b) All Category II items should be carefully reviewed to determine which items must be included in the common supply system being established, with due consideration being given to the significance of the costs involved and to the impacts on normal Service supply procedures.

(c) All Category III items should normally be excluded from the common supply system.

(CS-4) The commanders of unified commands and appropriate Service commands, in carrying out their responsibilities for providing and arranging supply support of their forces in peacetime or during war, use the following criteria for initiating common supply:

(a) Mission performance of activities supported will be improved.

(b) Common supply economies override additional costs at local level.

(c) Resources are sufficient to provide the required support.

- (d) Time and distance factors do not adversely affect performance.
- (e) Considerable backhauls will not be involved.
- (f) Likely contingencies will not require a change.

(CS-5) In addition to common supply as directed by the commanders of unified commands, the Services be encouraged by the commanders of unified commands to augment common supply support through the use of Interservice Support Agreements where a potential exists among individual Service activities for this type of support.

(CS-6) The Office of the Secretary of Defense reject the concept of providing overseas support for the full range of Defense Supply Agency/General Services Administration/U. S. Army Tank Automotive Command items through common supply systems.

### 3. ESTABLISHMENT OF DSA DISTRIBUTION POINTS OVERSEAS

a. Lessons Learned. The control and coordination of logistics systems required in a combat theater and the need to orient distribution systems to the peculiar operational requirements of each Service was clearly established. This experience and the considerations of the Board regarding support of military forces overseas have led to the following conclusions:

- (1) DSA distribution points should not be established in combat areas.
- (2) If the DSA believes that it can provide more responsive and economical support through the establishment of DSA distribution points in overseas locations for selected items, as part of the DSA wholesale distribution system, the Director of DSA should request the Secretary of Defense for the required authority.
- (3) Prior to a decision to establish DSA distribution points overseas, the proposal should be thoroughly evaluated in coordination with the Joint Chiefs of Staff and the military departments for military considerations, such as responsiveness to military requirements, requirements for security, impact on military resources, conflict in requirements for local resources, and command relationships.

## **5. COMMUNICATIONS SUMMARY**

## 5. COMMUNICATIONS SUMMARY

1. **OVERVIEW.** The war in Vietnam resulted in unprecedented logistic communications demands that in large measure had not been anticipated or planned for prior to 1965. The United States was committed to a conflict in an underdeveloped country on the other side of the globe which lacked sufficient means of communications to support adequately the limited forces in-country prior to the buildup. Despite this fact and the many inconveniences and difficulties as well as numerous shortfalls, the necessary communications were generally provided by one means or another. By mid-1968 most of the problems had been overcome. Thus, the history of communications in Vietnam includes strengths as well as weaknesses.

a. Communications requirements in Vietnam were profoundly affected by automatic data processing demands for the electrical transmission of digital data. These transmissions, which were vital to logistics users, required circuits of particularly high quality. At the same time, the transition from teletype operations for message traffic at 60 to 100 words per minute to digital data techniques at 200 cards per minute placed an increased burden on the tactical communication system tying into the Automatic Digital Network (AUTODIN), for improved switching and relay facilities as well as for high-quality circuits. The poor quality of the circuits in-being prior to mid-1967 introduced unacceptable error rates into logistics transactions. This necessitated the wide use of aircraft courier flights in-country and to Okinawa for the transfer of card traffic. Ultimately, a satisfactory high-speed fixed-plant data communications system was constructed that was capable of automatic transmission and routing of both narrative and logistic traffic.

b. To provide the necessary communications on which current logistics depends to such a great extent, a series of actions were taken throughout the era, the most significant of which occurred in the 1965 to mid-1968 time frame. This communications system is currently operating in satisfactory fashion. Consequently, the review of communications and its impact on logistics in the Vietnam conflict presented in this monograph emphasizes planning activities, the requirements generated during the buildup, and the means by which these requirements were met.

c. The buildup of the necessary communications capabilities lagged user requirements during the first years of the war. There were deficiencies in both the quantity and the quality of communications, particularly to meet logistics requirements. The magnitude of the tasks, the graduated nature of the buildup with the resultant escalation and instability of programs, the lack of satisfactory statements of requirements, shortages of personnel and equipment, and other constraining factors created significant problems in providing the required services and prevented communications from developing concurrently with the rapid troop and logistic buildup. Plans were developed in the early stages of the war to upgrade the long-haul systems with fixed-plant facilities; however, such facilities require extended periods for justification, design, and installation. Thus it was not possible to keep pace with demands. The situation was exacerbated by changing troop commitments, redeployments, expanding information needs, and digital communication requirements related to the introduction of automated data processing systems.

d. Contrary to fundamental principles establishing the inseparability of military operations and military communications, both of which are a command responsibility, the Commander, United States Military Assistance Command, Vietnam (COMUSMACV), found himself with inadequate authority over communications in Vietnam during 1965. Segments of the system fell under the authority of U. S. Army Support Command, Vietnam (USASCV); STRATCOM-PAC; Defense Communications Agency (DCA), which reported to DCA-PAC via USASCV; and the U. S. Air Force, under operational control of the 2d Air Division. The tactical portions of the system fell under the Service components; however, no clear-cut decisions had been made in the case of the long lines system as to what was tactical and what should be designated for long line management under DCA. This fragmentation of authority was a contributing factor in operational and planning problems.

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e. A submarine cable from Vietnam to the Philippines, where entry was made into the worldwide system, was completed on 31 December 1964. However, further actions were necessary to overcome the lack of high-quality circuits to Okinawa. Also, alternative routing with which to back up the cable was not available. These difficulties were not resolved until mid-1967.

f. Interim actions were taken to meet the developing communications requirements in-country by employing mobile/transportable equipment. This equipment was not always available in the quantity desired and it did not meet all requirements for quality; nevertheless, its flexibility, availability, performance, and relative ease of installation must be cited as strengths of communications support in Vietnam. The importance of mobile/transportable equipment is evidenced by the fact that as late as October 1967 it provided approximately 70 percent of the Defense Communications System circuits in Vietnam.

g. These paragraphs have summarized the essence of the logistic communications situation as it developed in Vietnam. A detailed review of the situation focused attention on four primary topic areas for in-depth review and analysis:

- (1) Logistic Communications Requirements and Planning.
- (2) Readiness for Contingencies.
- (3) Fixed and Mobile/Transportable Communications.
- (4) Automated Systems and Communications.

Major lessons learned and the seven most significant of the 12 recommendations developed within this monograph are discussed below.

## 2. LOGISTIC COMMUNICATIONS REQUIREMENTS AND PLANNING

### a. Lessons Learned

(1) Communications support of logistics in theaters-of-operations needs more adequate coverage in Service doctrine, and more-detailed coverage in operations and administrative plans and orders.

(2) The method projected for satisfying logistic communications requirements in Vietnam was the common-user system. This system proved to be lacking in responsiveness to requirements that were largely unforeseen and was supplemented by dedicated circuits. By December 1968, 55 percent of all the Defense Communications System circuits in Vietnam were dedicated. Logistics, with 14 percent of these circuits, was the second largest user.

(3) The Vietnam experience emphasized the need for early recognition of specific logistic requirements for communications so that adequate programming is ensured to fulfill these requirements along with those of many other users. To accomplish this, it is necessary to identify all the customers who require service and the types of service that are needed. Ideally, logistic requirements for communications should be specified at the doctrinal level. At the least, these requirements should be identified by the time contingency plans are prepared. The Joint Logistics Review Board has been unable to find any evidence that the Vietnam experience has led to identification and validation of overall specific logistical requirements for communications services nor has it been reflected in overall doctrine or planning.

### b. Recommendations

(CM-1) The Joint Chiefs of Staff instructions for contingency planning give specific reference to the identification of logistic requirements for communications and the means of gaining access to the Automatic Digital Network system.

(CM-2) The Services include the identification, quantification, and justification of specific logistic requirements for communications as part of their basic doctrinal reviews and studies, e.g., the Army-80 series of studies.

### 3. READINESS FOR CONTINGENCIES

#### a. Lessons Learned

(1) Current plans for providing communications support for logistics units, in accordance with Service doctrine, call for the support to be furnished by common-user systems. Both the Defense Communications System and the tactical communications systems provide this common-user support. Communications experiences in Vietnam provide evidence of shortcomings in this support.

(2) To ensure entry into the Defense Communications System by deployed forces, the planner must consider both the Defense Communications System and the tactical communications system that serve the theater. Rapid and reliable transmission is ensured once entry is made into the appropriate major common-user subsystem of the Defense Communications System, either AUTODIN or Automatic Voice Network (AUTOVON).

(3) Communications are considered adequate in those areas of the world in which the fixed-plant portions of the Defense Communications System exist. However, not all significant areas of the world are within reliable communications range of a station. The Defense Communications System serves most of the important areas of the world with four exceptions: the Indian Subcontinent, the Middle East, Africa south of the Sahara, and South America. Extension of this system into these areas would currently require the same types of equipments used in Vietnam, notably, high-frequency single-sideband radio and satellite circuits. Both of these systems have limited capabilities and are generally unsatisfactory for high-speed digital data transmission. A number of actions are required to provide and/or ensure logistic units with the necessary high-speed access to AUTODIN. These actions are covered by specific recommendations.

(4) The tactical system in the theater-of-operations presents a different problem. Tactical equipment is designed for rapid emplacement and its use does not provide the quality and capacity needed for high-speed data transmission over an extended period of time. Furthermore, tactical data terminals and data switching equipment are not available in required numbers, and tactical voice switching systems are not automated.

(5) The development and acquisition of different types of communications equipment, with essentially the same function and capability (including those cases in which there has been marginal improvement in performance), are creating significant operating problems in the field. This problem is further compounded by development efforts that have resulted in a variety of equipment types that are not compatible with one another and, in some instances, are not compatible with the Defense Communications System even though interface requirements exist.

#### b. Recommendations

(CM-5) The Secretary of Defense direct necessary actions to achieve a capability for the rapid extension of Automatic Digital Network to remote theaters-of-operations. These actions should include:

(a) Tasking the Director, Defense Communications Agency, to perform systems engineering effort toward providing solutions to the satellite communications transit time effect with a target of establishing high-speed (up to 200 cards per minute) data links via satellites.



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(b) The AN/TSC-54 mobile satellite terminals be modified to provide at least a 12-channel capacity.

(c) Pending the modification of the AN/TSC-54's, the Joint Chiefs of Staff designate two of the existing AN/MS-46 transportable satellite terminals for support of contingency operations.

(d) The three existing Defense Communications System contingency packages be augmented to include the communications equipment necessary to provide a high-speed (200 cards per minute) terminal for AUTODIN access, making maximum use of available commercial equipment to provide an immediate capability.

(CM-6) The military departments take that action necessary to achieve a high-capacity tactical data transmission capability that is fully compatible with AUTODIN. This should include initiation of the systems engineering effort required to provide message switching and transmission over low-quality tactical communications systems. As a part of this effort, the Navy should continue its engineering development of a reliable high-frequency fleet logistic digital data transmission system capable of interfacing with high-speed automated systems ashore.

#### 4. FIXED AND MOBILE/TRANSPORTABLE COMMUNICATIONS

##### a. Lessons Learned

(1) The initial deployment of communications units in a contingency is made with equipment that can be rapidly placed in operation. However, the resulting system is limited in both capacity and quality. Furthermore, it has limited durability and requires a great deal of maintenance after relatively short periods of operation. After it is no longer required, the recovery of fixed-plant equipment is difficult and limited.

(2) In Vietnam, it was necessary to replace the tactical equipment initially employed in Defense Communications System circuitry with fixed-plant installations. Although this solved the major problems, there was a period of more than 2 years before communications were satisfactory.

(3) These lessons learned have emphasized the need for a communications system that is better than tactical and more responsive than fixed-plant and can be recovered when no longer required. This need has led to:

(a) A Department of Defense policy calling for the use of heavy transportable configurations to meet new overseas requirements. Exceptions must be specifically justified and approved.

(b) Confirmation of previous efforts to provide heavy transportables for Defense Communications System extension and/or restoration. Efforts are currently at the Technical Development Plan stage.

(4) Communications systems other than the Defense Communications System require the same high-capacity, high-quality capabilities. Such capabilities could be provided by mobile/transportable equipment. The military departments can orient their preengineered fixed-plant facilities programs to provide for heavy transportables.

##### b. Recommendations

(CM-10) Heavy transportable modular communications equipment for Defense Communications System restoration or extension be acquired at the earliest practicable date.

(CM-11) The military departments orient their preengineered fixed-plant facilities programs to include heavy transportable communications equipment incorporating the modular concepts recommended for Defense Communications System restoration and extension.

## 5. AUTOMATED SYSTEMS AND COMMUNICATIONS

### a. Lessons Learned

(1) The increasing numbers of automatic data processing systems in the logistics field have had major impacts in both quality and quantity requirements for communications. These systems have data transmission quality requirements far exceeding those used in tactical communications. Furthermore, the extension of these systems further forward in theaters-of-operations has created demands for communications beyond existing capabilities.

(2) In Vietnam, 3 years of upgrading the communications system were required before a satisfactory level of quality to handle the demand of digital traffic was achieved. The Navy, which relies primarily on high-frequency radio links for long distance communications with fleet units, has not yet developed a satisfactory digital data transmission system to take full advantage of automatic data processing efficiencies and economies.

(3) Although AUTODIN provides satisfactory service for the automatic data processing user, serious problems are encountered once he is removed from easy access to it. Major problems in this respect are:

(a) Shortcomings in the commonly available transmission means (i. e. , high-frequency radio, tropospheric scatter and microwave radio, and cable systems, both submarine and land line). Satellites, with their attendant ground terminals, have excellent potential but are not now satisfactory.

(b) Switching facilities must currently be fixed-plant as there is no tactical capability.

(c) Most terminal facilities at subscriber locations currently require fixed-plant installations. However, some van-mounted equipment has been fielded and is currently awaiting operational test.

(4) A high degree of cooperation, coordination, and liaison between automatic data processing and communications is essential to ensure that compatibility and commonality problems of the systems and equipments are solved in the planning stage. This is necessary to avoid activation and operational delays and to eliminate the use of expensive interface equipment.

(5) As major users of communications systems with particularly stringent requirements, automatic data processing planners must consider communications requirements when measuring cost effectiveness and in planning for implementation.

### b. Recommendation

(CM-12) In the development of concepts and planning for automatic data processing equipment to support logistics, the Services give full and specific consideration to the requirements placed on communications, available capabilities, vulnerability, and costs and to trade-offs between the requirements for data and for communications.

## **6. CONSTRUCTION SUMMARY**

## CONSTRUCTION SUMMARY

### 1. OVERVIEW

a. The Vietnam conflict placed heavy reliance on construction. The undeveloped nature of Vietnam, with its almost total lack of base facilities initially available, particularly with regard to ports and lines of communications, placed a premium on rapid construction as a prerequisite to effective military actions and the logistic support of the forces deployed. The fixed-base, enclave nature and long duration of the conflict encouraged the development of a higher degree of permanency of construction than had been the case in past wars. The most striking aspect was the magnitude of the task. The construction forces met the challenge with a military construction program that totaled \$1.6 billion by mid-1968.

b. An exceptional feature of the construction program was the unusual reliance placed on civilian contractor forces to accomplish construction in a war zone. Because of the need to respond rapidly to demands for construction not foreseen in planning and the constraints imposed by the limited number of engineer troop construction forces on active duty (a situation aggravated by the fact that anticipated mobilization of Reserve and National Guard forces was not forthcoming), mobilization of a sizable civilian construction force proved to be imperative. Throughout the war, the contractor forces made a major contribution to the construction effort, although these forces were gradually reduced in size as engineer troop units deployed.

c. The strategy of graduated military actions and the dynamic conditions of warfare added to the difficulties of projecting requirements; however, it was necessary to anticipate the construction capabilities that would be required in sufficient time to provide for the lead time in building up these capabilities. By using broad measures, the overall contractor capabilities developed were adequate but not always timely or in ideal balance with the requirements as they actually developed. There were delays in gaining approval and developing the military engineer capabilities critically needed to fulfill requirements in direct or indirect support of combat operations scattered throughout the entire Republic of Vietnam.

d. The total capabilities of both troop and contractor construction forces were effectively employed. The contractor's forces, which rose to a peak strength of about 51,000 in 1966, dominated the construction scene initially; however, a more-balanced troop-contractor mix was later achieved. By the end of 1968, the engineer construction troops outnumbered the contractor's forces two to one. However, operational requirements placed heavy combat support demands on these construction troops, and therefore the capability of the two forces for military construction was about equal. In addition to these two primary construction forces, there were many other construction resources available to COMUSMACV and other commanders. These included such assets as turnkey contractors employed for special projects, facilities maintenance forces, self-help, and local contracting authority. These additional resources made a significant contribution to the construction program.

e. During the early stages of the buildup, the component and the Military Assistance Command, Vietnam (MACV), engineer staffs were inadequately manned for prompt development of plans and to perform the necessary coordination. The inadequacy of these staffs was particularly critical during the initial phases of the buildup, since base development planning and the management of scarce resources required extraordinary engineer staff effort. One result of this situation was the creation on 11 February 1966 of a Construction Director (with a jointly manned staff) responsible to the Commander, Military Assistance Command, Vietnam (COMUSMACV).

f. The expansion of the scope of the construction program during the buildup greatly complicated real estate acquisition. For various reasons, a cumbersome system had evolved

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during this advisory era, and improvements were required to make it more responsive. Only limited improvements were possible, however, because of the problems of constantly changing officials, establishing equitable indemnification, and arranging for the disposition of graves. The process of construction was impeded in many instances by delays in real estate acquisition.

g. Difficulties in planning that had plagued the determination of force composition and base development requirements also deterred the accurate forecasting of construction materials during the period when the supply pipeline was being established. Initially, the Services shipped on the basis of "best estimates," which were balanced in accordance with the proportions established in the various functional component systems. Although this procedure filled the pipeline and prevented a lag in the troop and contractor effort, it also created some excesses and stock imbalances and tended to dictate priorities of construction by material availability rather than operational necessity. As the situation stabilized and the flow of material was based more on demand keyed to a somewhat firmer program, these deficiencies declined.

h. Initially, there was a shortage of heavy construction equipment with which to expand the contractor's capability, to equip fully Army engineer units, and to fulfill the contractual commitments to the facilities maintenance contractor. The lack of reserve stocks of equipment encouraged stop-gap, large-scale procurement of available commercial equipment with a resultant proliferation of makes and models and attendant maintenance problems, the most significant of which was a shortage of repair parts.

i. The functional components of the Services greatly facilitated the early construction of facilities.

j. Low initial priorities and critical shortages in dredges, pile drivers, and prefabricated, portable piers resulted in long delays in developing the required ports.

k. Programming and funding procedures for Vietnam construction were established in the face of a continuing dichotomy at various echelons between those desiring program and financial control of each line item at the Washington level and those desiring complete flexibility at the theater command level. The ensuing compromises caused considerable confusion and a loss of motion at all echelons, particularly at the theater level where staff engineer capabilities were at a premium.

l. Programming and funding of construction requirements in Vietnam were essentially accomplished by utilizing the in-being military construction programming system that had evolved over many years primarily to satisfy peacetime construction requirements. It was a system that provided maximum visibility and minimum flexibility. When applied in a combat area, it resulted in an excessive amount of reprogramming, reevaluation, rejustification, and resubmission with all of the attendant administrative burdens.

m. The Congress of the United States was responsive in enacting the major appropriations in support of the Southeast Asia contingency. For example, less than 4 days were required to consider and pass the FY 65 Supplemental (65S) appropriation. Similar responses were experienced with both the FY 66 Amendment (66A) and the FY 66 Supplemental (66S) appropriations, each of which required approximately 2 months to process and pass into law. On the other hand, the requests for funds submitted to the Congress, particularly those applicable to the 65S and 66A appropriations, did not reflect fully the stated requirements of the responsible commanders.

n. One of the major problem areas associated with the management aspects of construction in Vietnam concerned the limitations of the full funding concept (the requirement to have all funds available prior to start of work). Although this may be a sound concept in a peacetime environment, it proved to be unduly restrictive in a combat theater. It did not recognize the magnitude of the contractor mobilization effort of early 1966, ignored the unallocated portion of the funds appropriated by the Congress, and considered the construction resources of each of the component commanders and the Officer in Charge of Construction, Republic of Vietnam, separately rather than as interrelated elements of an overall program. This resulted in the deferral,

reduction, or cancellation of many projects, with adverse effects on both the responsiveness and the effectiveness of the overall construction effort.

o. Requirements were established for detailed management data that were reflected in the construction program by continuous and changing demands for extensive reports on the status of funds and construction progress. Considerable management effort was expended in preparing and analyzing these detailed reports, the full value of which appears to have been questionable.

p. Many urgently needed facilities were not constructed when needed. However, from an overall point of view, the construction program met the essential test of being responsive to the needs of the Services and the commander of the unified command. As General Westmoreland stated in 1968 in his Report on the War in Vietnam: "Despite [numerous] obstacles, the construction mission was successfully and efficiently performed and the face of Vietnam was changed."

q. The preceding paragraphs have provided a brief review of construction in Vietnam. The succeeding paragraphs of this summary highlight the lessons learned from these experiences and enumerate the recommendations developed. These summaries are necessarily brief and incomplete; the pertinent chapters of the monograph provide a full and documented background to the conclusions and the recommendations that were derived.

## 2. PLANNING AND READINESS

### a. Lessons Learned

(1) An analysis of the operations plans and base development plans applicable to the Vietnam situation indicates that detailed construction planning had been done that was in most respects suitable for the specific plan but of very little value as the situation actually developed. Thus the Vietnam experience highlighted the importance of construction planning that will minimize time and effort in adjusting to the changes in requirements that are inevitable in war. The need was demonstrated for a more flexible base development planning system based on gross requirements. Such a system requires adequate engineer staffs during the early stages of the buildup to adapt these gross requirements to actual field conditions.

(2) Experience in Vietnam stressed the importance of the interrelated subjects of functional components, preengineered structures, and construction standards to both base development planning and to the execution of the construction program. It is essential that there be a full interchange of information in these areas among the Services, the Joint Chiefs of Staff, and the Office of the Secretary of Defense. Also stressed was the need to prestock critical long-lead-time equipment and up-to-date, preengineered, relocatable structures.

(3) The RVN experience indicated that it would be appropriate to expand the activities and tenure of the recently established Joint Staff/Services Construction Board for Contingency Operations. This Board is now charged to exchange information concerning results of Service functional component and retrievable concept research and development programs and to develop construction standards and planning factors for adaptation to various contingency operations. The activities of the Board need be expanded to provide advice and assistance to the Joint Chiefs of Staff in coordination of the establishment of construction policies and capabilities responsive to contingency requirements. Initially, the Board needs a full-time technical staff to overcome the backlog of work and to develop procedures that will facilitate discharge of the Board's responsibilities. Thereafter the Board should be assigned full-time assistance as necessary to accomplish specific tasks. (See Notes to recommendation (CO-2).)

### b. Recommendations

(CO-1) The Joint Chiefs of Staff ensure that the following are accomplished:

(a) Ensuring a continuing full exchange of information among the Services in major aspects of base development planning.

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- (b) Identifying any interface problems among the Services and unified chains of command in base development planning and related information.
- (c) Monitoring progress in regard to standardization and planning factors.
- (d) Monitoring overall readiness to meet contingency construction needs, the status of major deficiencies identified in the contingency planning process, and the availability of any specific assets of such critical importance that the lack of them would limit significantly contingency plan implementation.

(CO-2) In order to assist the Joint Chiefs of Staff in the accomplishment of the preceding responsibilities, the Terms of Reference of the Construction Board for Contingency Operations be amended as indicated in Appendix F of the Construction Monograph.

Note 1: While agreeing with recommendation (CO-1), the Navy Member of the JLRB does not agree with those portions of Appendix F which would change substantially the purpose of the Construction Board for Contingency Operations. The Navy Member set forth the following reasons:

"Following a review of the report of the Special Military Construction Study Group by the Joint Staff and Military Services, actions on several of the Study Group items were combined into a recommendation promulgated by JCS Memoranda (SM-801-68, SM-802-68, SM-803-68) of 11 December 1968, namely:

"That a Joint Staff/Service board be established to exchange information concerning results of Service functional component and retrievable concept research and development programs. The use of pre-engineered units which can be retrieved and relocated will be examined in detail. The Board will develop construction standards and planning factors for adaptation to various contingency situations.

"I concur with the Terms of Reference as promulgated by JCS memorandum SM-352-69 of 4 June 1969 to implement the recommendation. Every effort should be made to fulfill the responsibilities so assigned at the earliest practicable date including the assistance of personnel working full time to the extent necessary. In addition, I believe it would be appropriate to task the Board also with monitoring progress in the application of the standards and planning factors developed, and in ensuring a continuing full exchange of information on the technical aspects of base development planning for contingencies.

"In my opinion, other recommended changes to the Terms of Reference would extend the purpose and responsibilities of the Board into matters to do with policy, command relationships, programming, requirements, planning, and acquisition of material highly inappropriate for a specialized board. It would, I believe, inject the Board into matters which should be the subject of coordinated efforts within the Joint Staff and at the higher levels of the Military Services; tend to compartmentalize matters related to the construction aspects of planning and readiness; increase the danger of by-passing the responsible chains of command; encourage redundancy and duplication; and result in inefficient use of personnel."

Note 2: The USMC Member comments as follows:

"While agreeing with the great importance of both planning and execution of those aspects of the Military Construction Programs that relate to Base Development in Support of Joint Contingency Operations, I have certain reservations regarding the course of action recommended by the majority of the JLRB which is proposed as a means of improving existing procedures.

"The Joint Chiefs of Staff have been acutely aware of the shortfalls that manifest themselves in the support of operations in the Republic of Vietnam after 1965 and have taken a number of positive actions since 1968 designed to identify causes, fill voids, promulgate uniform procedures and undertake review and monitoring of the processes.

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"It is apparent that action has been initiated by the Joint Chiefs of Staff to remedy many of the shortcomings in the area of base development and construction which occurred in the Vietnam buildup. The most prominent of these actions by the JCS are the issuance of SM-643-69 and the establishment of the Construction Board for Contingency Operations. Other appropriate actions are known to be in work and continuing.

"In my view, it is too early for either the JLRB or the JCS to have reached definitive conclusions as to the overall pattern by which the JCS will achieve and retain the high degree of control that is essential to the success of base development in support of future contingency operations.

"I am in agreement that the detailed responsibilities set forth in the Construction Monograph and the need for the full time assistance for the Contingency Board are valid and need to be assigned to suitable subordinate functionaries of the JCS, but the alignment and delegation of authority should be based on the evaluation which will only be possible when the ongoing preliminary steps have been completed. I, therefore, suggest this alternate be adopted."

(CO-3) Because of their importance, high priority be assigned to the completion of tasks assigned to the Construction Board for Contingency Operations and officers be assigned to work for the Board on a full-time basis as necessary to complete these tasks.

(CO-4) Rather than concentrating on specific details such as individual line item identification and siting, contingency base development planning place emphasis on the following:

- (a) Determination of gross requirements derived from typical site layouts.
- (b) Troop and contractor effort requirements.
- (c) Funding required under variable parameters of force levels, locations, types of operation, and climatic conditions.
- (d) Key construction items with long lead times with particular attention to dredges, pile drivers, prefabricated piers, and rock crushers.

(CO-5) Provisions be made for the prompt augmentation of engineer staffs during the early stages of the buildup to adapt gross construction requirements to actual field conditions.

### 3. EXECUTION AND IMPLEMENTATION

a. Lessons Learned. Based on the Vietnam experience, the consensus of the Services is that troop construction units were preferred as the primary construction resource in the combat zone and that planning for future contingencies should be based on the use of engineer troops as the hard core of construction forces. However, the experience of Vietnam clearly demonstrated the feasibility and, under similar conditions, the desirability of employing a civilian contractor in a combat zone for major projects in relatively secure areas. This points up the need to consider contractor employment during planning for contingency construction and the extent to which the contractor will be dependent on the Services for administrative and logistic support. In Vietnam there were varying solutions to the problem of how contractors should be supported, but these evolved on a case-by-case basis without prior establishment of overall policies or guidance.

#### b. Recommendations

(CO-10) Planning for major contingency operations be based on the employment of a hard core of engineer construction troops augmented to the extent practicable by contractor forces.

(CO-11) In the case of plans for major contractor effort, the requirements contained in the instructions for base development planning in support of joint operations, recently issued by the Joint Chiefs of Staff (SM-643-69), be expanded to require, as appropriate, such specifics as:



(a) The time-phased plan for the mobilization of the contractor level of effort.

(b) The number and types of contractors to be employed.

(c) The degree to which the contractors are to be administratively and logistically independent (e.g., in such areas as procurement of construction materials and transportation).

#### 4. COORDINATION AND CONTROL

##### a. Lessons Learned

(1) The Military Assistance Command, Vietnam, engineer staff was initially inadequate to carry out fully the coordination and priorities responsibilities that had been delegated to the Commander, U.S. Military Assistance Command, Vietnam. The establishment of a Director of Construction with joint manning provided the required emphasis at a level commensurate with the importance of the construction program. The experience in Vietnam has shown that such a director should be directly under the command or part of the staff of the joint commander in the combat area to ensure effective and responsive coordination of the construction program with operations and logistic support.

(2) The ever-changing demands for detailed management information and differing formats for reporting dynamically changing programs imposed a heavy workload on the construction managers and responsible commands in Vietnam.

##### b. Recommendations

(CO-8) The Joint Chiefs of Staff instructions regarding base development planning for joint operations (SM-643-69) require specific provision for the coordination and control of construction in the combat area, as suitable to the contingency operation planned. The planning should set forth the composition and role of a construction directorate on the staff of the joint field commander if warranted by the scope and complexity of the contingency.

(CO-9) The contingency reporting system under development by the Joint Chiefs of Staff stress simplicity, reduction of information requirements to key elements pertinent to a combat situation, capability for expansion without major changes in automatic data processing programs and format, and compatibility with the program and funding management requirements of the Services.

#### 5. PROGRAMMING AND FUNDING

##### a. Lessons Learned

(1) One of the outstanding by-products associated with the extensive use of a civilian contractor in Vietnam was the successful development and implementation of the Level of Effort Construction Management System (LOE). This system resulted in revolutionary procedures applicable to the management of large cost-plus type contracts encompassing numerous diversified activities and specifically tailored, although not limited to, a combat environment. The system, which focuses on cash flow and cost of capability, should prove to be an invaluable asset in situations of continuing instability such as experienced in Vietnam.

(2) Simplified programming procedures should be established in advance and should not be revolutionized during a contingency operation as was the case during two separate occasions in Vietnam, each of which necessitated the complete restructuring of three major programs. Furthermore, different procedures should not be imposed on the different appropriations within the overall construction program.

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(3) The need for flexibility was duly recognized by the military departments and the commander of the unified command; however, the extent to which it was provided, prior to 1966, was negligible. Further, the modifications thereto, promulgated early in 1967, essentially reverted to peacetime procedures, imposed an undue and monumental paper workload, and were not commensurate with command responsibilities.

(4) Sufficient funds were not provided in a timely manner. The appropriated amounts, particularly prior to the FY 66S program, were below the required and requested level. The experience in Vietnam showed that, when the level of construction funds must be reduced, the reduction should be exercised through allocation control rather than by means of reduced appropriation requests.

(5) There was little resemblance between facilities originally programmed and those ultimately constructed. The early preparation of program definition by line item, months before the initiation of construction, accordingly resulted in the constant necessity to reprogram. Considerable effort was required to formulate the initial programs in great detail; much of this detail was of questionable value. Gross requirements programming would have been more responsive and effective.

(6) The unmodified application of the full-funding concept precluded the full utilization of the construction capability that had been mobilized.

(7) The programming and funding procedures employed to control the construction program in Vietnam were essentially peacetime procedures and were inappropriate for such a contingency. They did not provide the unified and Service commanders with the degree of flexibility required by and commensurate with their responsibilities. The experience in Vietnam clearly demonstrated the need for simplified procedures.

#### b. Recommendations

(CO-6) Subject to overall controls, the flexibility provided to the commander of a unified command in the execution of the construction program in a combat area be broad and commensurate with the responsibilities assigned and the exigency of the situation. To achieve this, the Office of the Secretary of Defense should develop and sponsor a completely new appropriation with established formats, programming procedures, and limitations specifically tailored to achieve an optimum balance of flexibility, responsiveness, visibility, and good management. This appropriation would be temporary in nature and applicable only during the contingency situation. It is suggested that such an appropriation be called "Contingency Construction Appropriation" and that the development of such an appropriation, and the management thereof, be based on the following:

(a) Definition of programs on the basis of gross requirements identified by a limited number of standard Department of Defense facility category groups.

(b) Appropriation of funds commensurate with the level of effort to be mobilized and maintained, in keeping with the gross requirements, the completion schedules, and the troop-contractor mix.

(c) Mobilization and demobilization costs funded separately from other construction costs.

(d) Introduction of line item identification at the construction directive stage of program execution.

(e) Authorization to make exceptions to "full funding."

(f) Allocation of construction funds in a single account for each Service without fiscal year identification of follow-on funds. Such follow-on funds should be additive to the accounts applicable to facility category groups in the total program.

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(g) Control of construction above the unified command level not based on detailed line item approval but exercised through broad guidance and veto power, with base "Complex Reviews" and established reporting systems providing the necessary data for decision-making.

(CO-7) Construction programming procedures to be employed in future contingencies be developed in advance between the Department of Defense and the appropriate congressional committees and that legislative proposals be drafted to implement the procedures agreed upon.

## 6. CONSTRUCTION MATERIAL

### a. Lessons Learned

(1) The construction stocks in-theater and in the continental United States were inadequate to support the buildup in 1965. The main causes were insufficient forecasting for and limited procurement of the General Mobilization Reserve Stocks and the Pre-positioned War Reserve Stocks. Construction of essential air and water terminals would have been facilitated had long-lead-time material for these terminals, such as airfield landing mats and prefabricated piers, been pre-positioned well forward in the theater.

(2) The establishment of an advanced base depot in the Western Pacific (outside Vietnam), with adequate shallow-draft lighterage, would have provided balanced and timely provisioning by permitting the "call forward" of materials on an "as needed" basis and would also have precluded the discharge of low priority and bulky cargo at RVN ports at other than periods of low activity. Construction materials are unique, in that, while bulky, as are Class I, III, and V cargo, they are not generally consumed at a determinable rate. Therefore, the scheduling of bottoms is difficult, and the use of airlift is usually impracticable.

(3) The introduction into Vietnam of many diverse makes and models of construction and utility equipment (particularly electric generators) unfavorably impacted on the engineer mission. This situation arose because standardized items of military equipment had not been established and, at the onset of the buildup, it was thus necessary to purchase any item of commercial equipment that was available. The impact of this practice resulted in maintenance and repair parts supply problems. Additionally, the situation was aggravated by inadequate initial spare parts provisioning. These Vietnam experiences showed that, when standardized items of critical military construction and utility equipment are not available or appropriate, a program should be established to standardize available commercial items.

### b. Recommendations

(CO-18) The instructions issued by the Joint Chiefs of Staff for base development planning in support of joint operations (SM-643-69) include consideration of the establishment of an in-theater forward depot geared to regulate (hold and forward on call) the flow of selected construction materials for each plan developed.

(CO-19) The Services, through the Joint Logistic Commanders, take under study the feasibility of the establishment of war reserve pools of critical commercial type construction equipment to be managed and rotated by the manufacturers concerned. (The Army's Commercial Construction Equipment System, presently under development, appears to have considerable merit regarding this course of action.) This would be enhanced by the use of sole source, multi-year contracts as recommended in Chapter VII, Supply Management Monograph.

(CO-20) Initial provisioning of repair parts for construction equipment be reviewed by the Services with a view to increasing accompanying and follow-on spares to a level commensurate with realistic combat construction experience.

(CO-21) Common supply provisions be made in accordance with the recommendation in that regard in the Common Supply Monograph.

## 7. REAL ESTATE

### a. Lessons Learned

(1) The procedures established by the Government of the Republic of Vietnam were the major cause of problems in timely real estate acquisition.

(2) The absence of a "country-to-country" agreement—or draft agreement—in support of the Republic of Vietnam contingency plans impaired expeditious real estate procurement. The failure of most base development plans to address adequately real estate requirements further complicated this issue.

(3) Because of the rapid and unpredictable nature of the buildup of forces in RVN, it was not possible to predict accurately real estate requirements and locations. This condition further complicated the problem of adequately staffing sections to handle the real estate processing.

(4) It is noted that the Joint Chiefs of Staff have taken action to:

(a) Require the development of procedural plans as an initial step in the advance preparation of real property negotiating folios to be used when appropriate.

(b) Provide for the inclusion of real estate requirements in base development plans. (Note: This is an expansion of the data currently contained in the U.S. Base Requirements Overseas Report and is intended to provide more detail.)

### b. Recommendations

(CO-13) The Office of the Secretary of Defense, in coordination with the Department of State, establish a file of draft real estate proposals suitable for the most likely host nations.

## 8. RESPONSIVENESS

### a. Lessons Learned

(1) Although on an overall basis the construction accomplished in Vietnam was responsive to operational requirements, a substantial backlog of work existed throughout the conflict. This in turn meant that much important but lower priority work was deferred or not accomplished. It is doubtful that a construction force large enough to ensure a consistently small backlog of construction could be mobilized under most war conditions. In fact, the establishment of such a large construction force would probably be an unwise allocation of available resources. However, improvements recommended above in the fields of gross requirements planning, gross requirements programming, and level of effort funding should lead toward a more nearly optimum balance between total requirements and the construction effort available.

(2) The elaborate procedures that were employed to request construction and have it approved, funded, and built contributed significantly to the lag between recognition of a requirement and construction of a facility.

(3) One of the key factors affecting user satisfaction in Vietnam was found to be the degree to which organic capabilities to accomplish construction existed. Although centralized control of construction resources provides efficient overall management of a construction program, commanders need to retain some organic capability to accomplish small construction projects essential to the accomplishment of their mission. In the absence of such a capability, a vast number of requests for small projects must be processed through already saturated administrative channels with the result that much small, urgent work simply cannot compete with larger projects of interest to the higher levels of command for the limited construction effort available.

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(4) A need has been demonstrated for the early specification of construction standards by the commander of the unified command and the subsequent enforcement of these standards to eliminate many of the real and fancied complaints of inequitable treatment, particularly where units from different Services are collocated.

(5) A requirement was also established for consideration, during contingency planning, of the manner in which the Army's responsibility to provide troop construction support to the Air Force is to be discharged.

b. Recommendations

(CO-14) The Services establish simplified procedures for requesting and approving construction in the combat zone.

(CO-15) Following the development of construction standards and planning factors by the Construction Board for Contingency Operations, operation plans and implementing orders specify the standards to be used and provide necessary guidance to adapt the standards and factors to the circumstances of the plan.

(CO-16) Contingency planning provide for adequate organic construction capabilities and appropriate delegation of approval authority to permit commanders to accomplish minor urgent construction projects in a timely manner.

(CO-17) Contingency plans and base development plans address the way in which Army troop construction support will be provided to meet Air Force requirements.

## **7. CONTAINERIZATION SUMMARY**

# CONTAINERIZATION SUMMARY

## 1. OVERVIEW

a. The Joint Logistics Review Board study and analysis have clearly and conclusively established that containerization represents a key to major improvements in the efficiency and economy of logistic support to combat forces. Hundreds of millions of direct dollar savings in operating costs and in cost avoidance can be realized in a contingency like Vietnam by exploiting the potential of containerization to improve supply, distribution, and transportation operation. The logistic system efficiencies reach well beyond the basic movement economies of containerization.

b. The advantages of containerization are becoming widely recognized in commercial circles. Commercial operators, driven by the overwhelming cost advantages, are moving rapidly to fully exploit the new technology. In less than a decade, containerization has become the single most important force in general cargo handling, and several billion dollars have been invested by the ocean shipping industry in container facilities and equipment in the short period since 1966.

c. U.S. shippers first perceived the economic advantages and have thus led the container revolution; foreign ship owners have been forced to follow suit. On 30 June 1969 there were 79 U.S. flag container ships and an additional 103 ships with partial capacity for containers. At present approximately 120 container ships and 460 break-bulk ships are in the U.S. merchant marine. By 1980, this fleet is expected to number 220 container ships and 190 break-bulk ships. Although fewer ships will be available in 1980, the total U.S. merchant marine sealift capability will be about the same because the ships will be more productive.

d. The Department of Defense (DOD) has always been, and remains today, largely dependent upon the commercial ocean carriers for movement of military cargo, in peacetime as well as wartime. DOD policy, broadly stated, is that if fairly priced commercial services can meet the military requirement, full use will be made of commercial resources. Since commercial operators are converting from break-bulk ships to container ships, it is clear that, in the future, the bulk of maritime shipping furnished by the merchant marine to DOD will consist of containerized ships.

e. The Military Sea Transportation Service (MSTS) nucleus fleet is needed for immediate reaction capability for military contingency operations and for the flexibility associated with peacetime ocean transportation support of the Armed Forces, including specialized operations support requirements. Currently, there are no container ships in the MSTS nucleus fleet; consequently, there is an immediate requirement to modernize the fleet.

f. Full exploitation of containerization throughout DOD offers major challenges and rewards. The challenges are associated with programming and managing the resources toward the end of optimizing military logistic operations for the future. The rewards involve manifold improvements in the economy, efficiency, and responsiveness of future logistic operations of a yet to be determined but certainly substantive magnitude. The comprehensive reassessments of supply, transportation, and logistic systems doctrine of the Services associated with containerization are not unlike the perturbations induced by containerization in the commercial distribution industry. The DOD challenge of the moment is "how" as opposed to "why."

g. The DOD and the Services must move to exploit rather than react to the potentials of containerization. The economies to be derived through containerization in the military services logistic systems leads to an urgent requirement for a bold commitment toward container-oriented military logistic systems.

## 2. USE OF CONTAINERS AND ECONOMIC IMPLICATIONS

### a. Lessons Learned

(1) Containerization is one of the highest potential payoff areas for reducing logistic cost in peacetime and in future emergency operations by increasing the efficiency of supply, distribution, and transportation operations.

(2) Vietnam experience clearly demonstrated the advantage of containerized shipments over break-bulk shipments through savings in costs, manpower, and time resulting from reductions in cargo handling, pipeline investment, port facilities, storage facilities, shipping, loss damage, and pilferage.

(3) Analysis of shipments in support of the Vietnam operation proved that, except for a relatively small amount of outsized cargo, practically all DOD general cargo is containerizable either in CONEX-size or van-type containers.

(4) Containers were an integral part of a special endeavor to provide Cam Ranh Bay with an enhanced capability when the decision was reached to make that installation a major U.S. Army supply base. As in most locations in Vietnam, the construction of depot facilities did not keep pace with the influx of supplies and equipment. It was estimated in January 1966 that by the end of June 1966 the Cam Ranh Bay depot would be supporting a force of 95,000 men. In an effort to overcome the lack of facilities, the Army Materiel Command prepared a pre-packaged depot, in effect, containing a 60-day stockage level of repair parts for all units supported by the depot at Cam Ranh Bay. When completed, the entire package of about 53,000 line items was contained in 70 military van semitrailers and 437 binned CONEX containers— together with a library of manuals, stock records, locator cards, and other documentation. This concept represented container-oriented logistics in a sophisticated form. The movement of a section of a depot intact from the United States to Vietnam was a good example of the integration of supply and transportation systems. The project packages arrived at Cam Ranh Bay on 21 May 1966, and a total of 13,538 materiel release orders were issued during the first 10 days of operation with only 26 warehouse denials (less than 0.2 percent).

(5) Ammunition has also been successfully handled in container ship service. During December 1969 and January 1970, a test was conducted of the feasibility of shipping ammunition from the United States to Vietnam utilizing container ship service. A self-sustaining container ship was used in the test to move 226 containers of ammunition from the United States to Cam Ranh Bay. Some of the containers were unloaded in the ammunition depot at Cam Ranh Bay, whereas others were transshipped on lighterage to Qui Nhon and on to forward supply points. The test was such a complete success that the 1st Logistical Command recommended the initiation of regularly scheduled ammunition resupply in container ships to reduce order and ship time with attendant savings in pipeline inventory. In addition, 1st Logistical Command indicated that such action could lead to the phasing down of the ammunition depot at Qui Nhon.

(6) Containerization offers many advantages during the early buildup phase of contingency operations similar to Vietnam in transportation and for other purposes. These include but are not limited to the following:

- (a) Prestockage and movement of unit equipment
- (b) Prebinned stocks to include pre-positioned war reserves
- (c) Temporary storage
- (d) Facilities such as shelters, shops, housing, communication, and command

centers.



b. Recommendations

(CN-1) Based on the sound economic case for containerization and the uniformly favorable response to Vietnam experiences, the Department of Defense adopt a policy that all ocean-going military cargo that will fit in a container will move in a container, with deviations to this policy treated as clear-cut exceptions.

(CN-2) The military departments exploit the use of containers by maximizing the use of containers for purposes to include:

- (a) Moving unit equipment to support deployments.
- (b) Prebinning of stocks when desirable to facilitate in-theater logistic operations.
- (c) General cargo distribution.
- (d) Temporary storage.

3. CONTAINER-ORIENTED LOGISTIC SYSTEMS

a. Lessons Learned

(1) Experience with large intermodal containers in Vietnam clearly indicates that full exploitation can have as revolutionary an impact on military shore-based logistics as it has had on commercial shipping. Among the major logistic problems encountered in moving supplies to Vietnam were the following:

- (a) Lack of personnel, equipment, and facilities to discharge ships.
- (b) Lack of depot facilities and experienced personnel to warehouse supplies.
- (c) Loss, damage, and theft of cargo and deterioration of supplies stored in the open.
- (d) Inability to identify cargo received in depots.
- (e) Delays in translating cargo documentation into inventory records.
- (f) Inability to effectively ship directly from CONUS source to major user without passing through intermediate theater and in-country supply echelons.

(2) The use of containers proved that many problems can be significantly alleviated by proper systems application of containerization. For example:

- (a) Container ships can be discharged 7 to 10 times faster than break-bulk ships with fewer personnel on each shift. Drastic reduction in berthing space and in port operating personnel result.
- (b) The practicality of operating directly out of containers prebinned in the United States was demonstrated at Cam Ranh Bay.
- (c) All recipients of containerized cargo were enthusiastic about reduction in loss and damage—particularly for ammunition, perishable cargo, and Post Exchange supplies.
- (d) Because cargo is moved intact in a container from CONUS to the depot or directly to a forward unit, problems in sorting and identifying cargoes are minimized.

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(e) The Cam Ranh Bay operation proved that prepunching cards in the United States and covering the materiel in a container can speed up the documentation of assets and reduce errors in inventory and locator records.

(f) The shipment of containerized ammunition loaded inland in CONUS was shipped directly to forward ammunition supply points. There was no difficulty in unloading operations and the cargo was in better overall condition than any ammunition previously received in Vietnam.

(3) Vietnam experience with the CONEX container fleet and the larger, commercially provided, van-sized container capabilities clearly indicate vast potential for improved logistic operations. However, from a position of leadership and dominance in containerization with the CONEX experience, the Services have fallen behind commercial industry in containerization and its systems applications because of the continued influence of break-bulk supply and transportation systems. To catch up, experience to date indicates that significant changes in concepts and procedures will be required.

(4) The Vietnam conflict again emphasized that the DOD may be called on to conduct extensive military operations without the exercise of powers required to requisition ships and supporting facilities. Consequently, the DOD must acquire a capability to provide container ships, supporting facilities, and equipment to support wartime operations until commercial service can be made available through contractual arrangements. This period could range up to 180 days.

(5) In Vietnam both self-sustaining and nonself-sustaining container ship discharge was limited to the use of fixed-pier facilities. During the early phases of future contingency operations, the military must have the capability to offload container ships in areas where fixed facilities do not exist. Therefore, to provide for using containers where fixed piers are not available, there is a requirement to jointly develop and test military capability for:

(a) Offshore discharge of containers from nonself-sustaining ships onto lighterage by means of a floating crane.

(b) Offshore discharge of containers from self-sustaining ships onto lighterage.

(c) Transport of containers by helicopters from self-sustaining ships to inland points.

(6) Containerization during the Vietnam era resulted primarily from transportation-oriented developments, such as the introduction of new types of transportation equipment, ships, and vehicles. If the total benefits of containerization are to be exploited throughout the entire DOD logistic system, there is an urgent requirement to develop supply distribution and transportation concepts oriented toward maximum containerization. In order to develop these concepts and systems, it is essential to recognize the requirement and then to organize for their development.

(7) The requirement for increased military reliance on containerization is axiomatic.

(8) It is fundamental that the compelling force behind development of containerization must be the logistic users of containers. Integrated supply, distribution, and transportation concepts oriented toward maximum containerization must be developed by the users in coordination with the operators, MSTs, MTMTs, and MAC. The operators must insofar as practicable adjust their transportation services to accommodate the system logistic concepts of the using Services.

(9) Container-oriented logistic support systems can be broken down into two basic subsystems and commercial enterprise is directed toward developing these subsystems. These subsystems relate to land-water-land movement of containers and to land-air-land movement

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of containers. Because the Army sponsors two-thirds of the cargo moving overseas by surface means, operates ocean terminals both in the United States and overseas, and must clear cargo from these ports, it has the predominant interest in the land-water-land subsystem. It would be logical, therefore, to task Army to lead a jointly staffed effort to develop the land-water-land subsystem of container-oriented logistic systems.

(10) The Air Force has the predominant interest in the land-air-land subsystems. It relies on air transportation to a significant degree in the resupply of its units, and it operates the air terminals. It should, therefore, lead a jointly staffed effort in developing the land-air-land subsystem.

#### b. Recommendations

(CN-9) The Logistic Systems Policy Committee task the Departments of the Army and the Air Force to lead jointly staffed efforts to coordinate the development of land-water-land and land-air-land container-oriented logistic systems, respectively. The thrust of these efforts should stress the "how" and not the "why" of containerization, and be directed toward early development of container-oriented logistic systems. In order to ensure the incorporation of all relevant considerations and maximize the probability of prompt implementation of recommendations, the senior Service representatives engaged in the joint efforts should be responsible to their respective Services as well as to the Director of the joint effort.

(CN-6) The Services jointly develop and test the capabilities and procedures for the conduct of logistics-over-the-shore container operations. Based on the results of these tests, the Services should establish their requirements for a family of containers, container ships, and container-handling equipment to support logistics-over-the-shore operations and should procure sufficient quantities of this equipment for assured support of a contingency operation in underdeveloped areas.

(CN-4) The Joint Chiefs of Staff determine the number and types of container-capable ships that must be in the Military Sea Transportation Service nucleus fleet in order to implement a containerization policy that will provide the resources necessary to meet requirements for peacetime support, and for contingency operations until such time as commercial container ship service can be made available and operational in the contingency area. Other recommendations that relate to this subject appear in the Transportation Monograph.

(CN-5) The Secretary of Defense seek to have the legislation stemming from the President's Merchant Marine Program include positive provision for ensuring the responsiveness of modern U.S. flag container ships with gantry crane rails installed to meet military requirements under various conditions of emergency. Other recommendations that relate to this subject appear in the Transportation Monograph.

## **8. DSA/GSA SUPPORT SUMMARY**

## DSA/GSA SUPPORT SUMMARY

### 1. OVERVIEW

a. Current concepts of integrated material management and the provision of common logistic services from a single source for all the forces of the Department of Defense (DOD) evolved during periods of peace, primarily since the Korean War. Consequently, the Vietnam conflict has provided, for the first time, the opportunity to assess the effectiveness of these concepts under combat conditions.

b. The support roles assigned to integrated managers have grown at a rapid rate since the establishment of single manager operating agencies during the 1950's. The Defense Supply Agency (DSA), an outgrowth of these single manager agencies, was established in 1961 as a separate agency reporting directly to the Secretary of Defense to function as a consolidated wholesaler for assigned items of supply. Concurrent with the establishment of DSA, the General Services Administration (GSA) was given an increased role in the provision of integrated logistic support to the Department of Defense.

c. The support roles currently assigned to DSA and GSA are substantial. The DSA is assigned inventory management responsibilities for approximately 1,973,000 common items of supply, of which 620,000 were assigned during the Vietnam era. The GSA manages about 68,500 Department of Defense-interest common supply items, with the responsibility for supporting the DOD on about 20,000 of these having been added since the start of the Vietnam conflict.

d. The DSA operations are conducted within the United States, excluding Alaska and Hawaii, except as specifically extended by the Secretary of Defense. Its supply distribution system consists of six Defense Supply Centers and four Defense Depots, all of which are located within the 48 contiguous States.

e. The GSA, an independent agency of the executive branch, serves as the primary DOD source for GSA procured items of supply. It is organized into a headquarters and 10 regional offices with a Federal Supply Service (FSS) function assigned to each. The FSS is involved in the procurement, receipt, management, storage, and distribution of materials and equipments to all Federal agencies including the military. The FSS system interfaces with DOD activities through the use of the standard requisitioning system (MILSTRIP) and the Uniform Materiel Movement and Issue Priority System (UMMIPS).

f. In general, supply support by both DSA and GSA was responsive throughout the Vietnam era. Some wholesale level and pipeline shortages of DSA managed items did develop, primarily clothing, textiles, fortification materials, and the M8A1 landing mat.

g. Initially, integrated management was accomplished by assigning all items in a Federal Supply Class (FSC) to a single manager. This was feasible because the classes were homogeneous, uncomplicated, and consisted primarily of food, clothing, textile, medical, and petroleum products. With the addition of other more complex FSCs beginning in 1959, the problem developed of selecting the proper specific items for integrated management. Several unsuccessful attempts were made to institute single, uniform criteria for selecting items for integrated management. In October 1964, revised criteria were developed to provide uniform and specific guidance that would permit the retention by the Services, when warranted, of items in FSCs assigned for integrated management. The criteria did not permit Service retention of an item for management solely because it might be used by only one Service. The Defense Materiel Council accepted the revised criteria and, late in 1964, directed an application test. At the April 1965 Defense Materiel Council meeting, the findings and recommendations developed by the test were presented and approved.

h. The preceding paragraphs summarize the more important aspects of DSA/GSA support of the Services prior to and during the Vietnam conflict. The major lessons learned, and the recommendations developed within the monograph, are addressed in the balance of this chapter.

## 2. ITEM MANAGEMENT CODING

### a. Lessons Learned

(1) In general, the Item Management Coding (IMC) assignment criteria approved in 1965 have proved effective in determining item management assignments and have gained general acceptance by the Services. However, since the factors upon which the criteria and the program policies and procedures are based are dynamic and subject to variations in importance and application, there is a requirement for periodic review and updating to ensure currency with existing conditions, situations, and needs.

(2) In many instances during the Vietnam era the application of the approved Item Management Coding criteria resulted in the assignment of items to integrated managers that were used by only one Service. Among the items so assigned, there were some of such unique characteristics that they can be identified as having ultimate usage by only one Service and whose retention for Services management is desirable.

(3) The present sequential filter screening procedure for applying the Item Management coding criteria requires a substantial amount of effort on the part of the coding Service. Major changes can cause severe and perhaps unwarranted strain on the Service's and integrated manager's logistic capabilities if implemented during the periods of peak workload in support of the combat operations. An example of such a change was the Retroactive Item Management Coding Program implemented in 1965.

### b. Recommendations

(DG-1) Item Management Coding policies, procedures, and criteria be reviewed by the Services (through the Joint Logistics Commanders) and the integrated managers for adequacy in light of current needs, situations, and conditions and that recommendations for updating and simplification be submitted.

(DG-2) The following excepting criterion be added to the approved Item Management Coding criteria:

UNIQUE ITEMS - These are items of such unique characteristics that they can be identified as having ultimate usage by only one Service.

(DG-3) In the future, the Office of the Secretary of Defense give extreme care and consideration to existing commitments and capabilities in determining the timing for accomplishment of programs, such as the Retroactive Item Management Coding Program, that would impose severe added logistics workloads on the Services.

## 3. SUPPLY SUPPORT

### a. Lessons Learned

(1) Overall support to the Services by the Defense Supply Agency (DSA) and the General Services Administration (GSA) during the Vietnam era was responsive. However, some shortages of DSA-managed items did occur, primarily because of inadequate forecasting of requirements by the Services and DSA.

(2) Under policies and procedures existing during the Vietnam conflict it was not possible to compute valid General Mobilization Reserve requirements for the wide range of DSA managed items for which mobilization reserve requirements were submitted by the Services.

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(3) The technical documentation and procedural requirements of the Services and DSA that govern provisioning activities were essentially designed for peacetime operations. They did not prove to be sufficiently responsive for support of active combat.

#### b. Recommendations

(DG-4) The concept of management of General Mobilization Reserves of Defense Supply Agency managed materiel be revised by the Office of the Secretary of Defense as follows:

(a) Conventional mobilization reserve item selection criteria and computation procedures be retained only for the following categories of Defense Supply Agency managed materiel:

1. Medical
2. Clothing and textiles
3. Subsistence
4. Packaged petroleum products
5. Photographic supplies
6. Field fortification materiel

(b) For all other commodities assigned to the Defense Supply Agency for management, item selection by the Services be tightened to restrict selection for mobilization reserve stockage to a limited number of items that are of critical combat importance. (Other recommendations concerning logistics guidance and mobilization reserves are in the Logistics Planning Monograph.)

(DG-5) The Services and the Defense Supply Agency develop and document techniques for accelerated provisioning during future military emergencies. These techniques should include requirements for provisioning of commercial end-items to be deployed in combat theaters; reducing the frequency of Engineering Change Orders; and policies and procedures for expediting repair parts ordering. These techniques should be published as emergency annexes to provisioning instructions.

## **9. EXCESSES SUMMARY**



## EXCESSES SUMMARY

### 1. OVERVIEW

a. In large-scale military operations, the cessation of hostilities or phase-back of operations has always resulted in large quantities of materiel being left over and created problems of making the best use of this materiel from the points of view of readiness and economy. During the Vietnam conflict, the Department of Defense has given intensive attention to the identification of quantities excess to immediate needs while the conflict has been in process, and to the redistribution or expeditious disposal of these excesses.

b. Some excesses are unavoidable. Some will result from reasonable prudence in providing for possible emergencies. Others are, to a large degree, avoidable. The importance of reducing the latter to a minimum has been forcibly brought out by experiences in the Vietnam conflict, and goes beyond cost reduction and effective use of assets. The delivery of unnecessary materiel to a combat area, with its handling and storage, saturates logistic capabilities and degrades the effectiveness and efficiency with which important needs of the operating forces are fulfilled—particularly in the initial stages of the conflict.

c. The goal of the Department of Defense has been to reduce avoidable excesses to the minimum and to have logistic systems in being that provide for the early identification of all potential excesses, maximum redistribution of potential excess materiel to satisfy other Department of Defense requirements, and the expeditious disposal of excesses that are not required by the Department of Defense. Since the Korean War, substantial efforts have been made to increase the utilization of excess materiel. In 1962 the Defense Logistics Service Center, part of the Defense Supply Agency, was tasked with a project, Procedures for Long Supply Asset Utilization and Screening (PLUS), designed to more effectively determine the status of materiel at Inventory Control Points which was available for transfer to satisfy requirements of other Inventory Control Points. In effect, the Defense Logistics Service Center serves as the final clearing house for the utilization and redistribution of excesses to components of the Department of Defense. It is noteworthy, however, that the bulk of utilization and redistribution of excess materiel is accomplished between the Services by direct interrogation. In addition to the Defense Logistics Service Center, there are two other organizations now charged by the Secretary of Defense with the utilization and disposition of excesses in geographic areas, the Pacific Utilization and Redistribution Agency and the Materiel Assets Redistribution Center, Europe (MARCE). The Pacific Utilization and Redistribution Agency is operated by the Army to process excesses in the Western Pacific, and the Materiel Assets Redistribution Center, Europe, is operated by the Air Force for the redistribution of excesses in Europe.

d. The Services have identified more than \$1 billion of excess materiel in the Western Pacific as a result of the Vietnam War, of which more than two-thirds has been redistributed to meet valid Department of Defense requirements.

e. Substantial quantities of materiel excess to the operating requirements were introduced into Vietnam and the Western Pacific area early in the war. Some of this materiel was shipped to Vietnam with units during early deployments; however, most of the excesses were sent to Vietnam via the push or pull supply systems of the Services. During late 1967 as the buildup was nearing completion, excesses began to attract serious attention. For the first time in the history of United States warfare, extensive management programs were undertaken during open conflict to purify stockage levels; to identify, redistribute, or retrograde excess stocks; and to cancel or frustrate scheduled shipments of cargo.

f. The Joint Logistics Review Board experienced difficulty in identifying the total cumulative value of potential excess materiel generated on a worldwide basis during the Vietnam

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era. Two reports have been identified that provide information on the status of potential excesses. These are the Report of Utilization Transfers of Supply System Stocks (DD Form 1461) and the Changes in Appropriation Financed Inventories (DD Form 1138) report. Neither of the reports provides top-level management with information that is consistent among or within the Services on the annual cumulative value and disposition of worldwide potential excesses.

g. At present immediate attention is being focused on the utilization and redistribution of assets in the Western Pacific area by the Pacific Utilization and Redistribution Agency. Measures are being taken to improve the present Pacific Utilization and Redistribution Agency system to ensure its full use of and compliance with its procedures by all military services, to reduce screening times, to provide additional peripheral automatic data processing equipment, and to establish closed-loop reporting. In addition, under the guidance of the Assistant Secretary of Defense (Installations and Logistics), a long-range concept of centralized screening of worldwide excesses at one location is being explored, which may result in eliminating the requirements for both the Pacific Utilization and Redistribution Agency and the Materiel Assets Redistribution Center, Europe. The balance of this chapter summarizes the major lessons learned through the Board's review of the causes of Vietnam excesses and worldwide screening processes, and lists the recommendations developed within the monograph.

### 2. VIETNAM EXCESSES

#### a. Lessons Learned

(1) The Vietnam experience has indicated that the majority of the materiel that becomes excess to the intended user can be redistributed to satisfy valid DOD requirements. Less than one-third of the potential excesses identified thus far as a result of the Vietnam War have been reported to property disposal officers.

(2) Some excesses are unavoidable during a war. Consequently, the best logistic system cannot prevent some excesses from occurring. Examples of the causes of this type of excess are obsolescence of equipment, the nature of the reaction type of war in Vietnam, and the inactivation and redeployment of units without adequate time to turn off the materiel in the pipeline.

(3) Early identification of potential excesses and an effective utilization screening system are essential to controlling the accumulation of excesses in overseas areas. The intensive management effort of all Services, starting in 1967, to identify and to use or to dispose of excesses resulted in a considerable savings of tax dollars.

(4) Inadequate control of the movement of supplies into Vietnam during the buildup phase and the difficulty in frustrating unneeded supplies during shipment contributed to excesses. Materiel was shipped into Vietnam at a rate exceeding the capability of the logistic base to properly receive, store, and account for the materiel. Improved control of the movement of supplies into a combat theater would reduce excesses.

(5) The lack of a sufficient logistic base during the buildup phase contributed to excesses. In Vietnam many excesses were caused by a shortage of air terminal port and depot facilities, trained supply personnel, materials handling equipment, and computer equipment for accounting for supplies.

(6) Inadequate restraints on requisitions submitted by users created multiple demands for materiel that exceeded actual requirements. It also contributed to an increase in range and depth of stocks in-theater which further complicated control procedures and led to the accumulation of excess materiel.

#### b. Recommendations

(1) Many of the above lessons learned support recommendations found in other monographs of the Joint Logistics Review Board report and will contribute to the reduction and

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improved management of excess materiel. Those recommendations that will have the most significant impact on reductions of excesses relate to:

- (a) Providing prefabricated storage facilities (Supply Management Monograph, Chapter VIII).
- (b) Introducing early, mobile automatic data processing equipment adequate for the management workload (Automatic Data Processing Systems Monograph, Chapter IV).
- (c) Reducing range and depth of theater stocks (Supply Management Monograph, Chapter VII).
- (d) Regulating the input of cargo to that within reasonable reception capability (Supply Management Monograph, Chapter VII).
- (e) Maintaining a logistic control office by the Army (Supply Management Monograph, Chapter VII).
- (f) Minimizing requirements for maintenance in-theater (Maintenance Monograph, Chapter XIII).
- (g) Exploiting containerization (Containerization Monograph, Chapter II).

(2) In addition to the recommendations developed in other monographs that will serve to reduce the excess problem, the Joint Logistics Review Board recommends that:

(EX-1) The identification of excesses be initiated as early as possible in any future conflicts, and an organization and system for the efficient, effective redistribution of excesses in overseas theaters be maintained on a permanent basis.

### 3. WORLDWIDE EXCESSES

#### a. Lessons Learned

(1) The excess reporting systems used during the Vietnam War did not provide valid information on the annual cumulative value of potential excesses on a worldwide basis. Such information would be a useful tool for measuring the efficiency of supply management. The value of these excesses, when measured against the value of inventory, sales, and procurement on an annual basis, would provide meaningful data related to the efficiency of supply management.

(2) The overall performance of the Department of Defense in the area of excesses cannot be determined from existing reports on potential excesses. One report does provide the on-hand values of potential excesses at the end of each fiscal year; however, Service components could be generating excesses at an increased rate and disposing of the excesses generated at an even faster rate, leaving the on-hand balance at the end of the fiscal year lower than that of previous periods. In this case it would show an improvement of the ability to utilize or to dispose of excesses, but not to prevent their generation.

(3) The materiel utilization systems in existence during the Vietnam War have not provided maximum redistribution of potential excesses. A centrally coordinated screening system using standardized procedures is required to eliminate many of the current problems and improve utilization of worldwide excess materiel on a timely basis.

#### b. Recommendations

(EX-2) The administrator for the Defense Materiel Utilization Program, Director, Defense Supply Agency, in coordination with the Services, review current excess reporting systems and recommend a reporting system that will provide comparable data in a single report showing by Service worldwide excesses, both potential and declared.

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(EX-3) The Assistant Secretary of Defense (Installations and Logistics) approve the concept of a single worldwide excess screening activity under the control of the Defense Supply Agency. The Defense Supply Agency should be charged to develop, in close coordination with the Services, standard systems and procedures required to implement this concept.

## **10. FINANCIAL MANAGEMENT SUMMARY**

## FINANCIAL MANAGEMENT SUMMARY

### 1. OVERVIEW

a. In addressing the subject of financial management, the study effort was focused on an examination of the Planning, Programming, and Budgeting System (PPBS), and the three classifications of funds: operating expense funds, working capital funds, and investment funds. In addition, the three special financial supporting functions of auditing in the combat zone, industrial-funded activities, and Military Assistance Programs (MAPs) were reviewed.

b. Financial management techniques and procedures did not change significantly during the period 1965 to 1970 as a result of the Vietnam conflict. Certain minor modifications in procedures were made within each Service to meet changing conditions and the particular requirements of the individual Service mission, location, and environment.

c. The PPBS is the basic financial management vehicle by which the Services obtain resources to support assigned missions. This system was implemented in the early 1960's and remained essentially the same until January 1970 when certain modifications were made to improve the system and provide the military departments with timely and realistic guidance. The impact of these changes cannot be evaluated until completion of the FY 72 defense budget cycle.

d. Experience during the Vietnam era has indicated that the PPBS provided a sound basis for the effective financial management of the Department of Defense programs. The system, however, did not function without difficulties that reflected policies of tight centralized control. The war has been financed on an incremental basis by submitting supplemental requests to meet escalating logistic requirements not programmed in the regular annual defense budget. These policies created considerable program instability for the military departments in the management of all appropriations. The turbulence was particularly troublesome in the procurement of major items of equipment. As a result of program instability, the following expediting procedures were required to obtain funds on a timely basis: (1) exemptions from apportionment, (2) critical item procedures, (3) Emergency Defense Fund and Transfer Authority, and (4) re-programming actions. Although these financial procedures did in general provide an acceptable degree of budget flexibility to meet funding requirements for Southeast Asia, program managers were hard-pressed to process the many complex and time-consuming program changes required to make adjustments to Service programs. This experience demonstrated that program managers in the Services must receive timely and stable guidance to permit them to manage their programs in a more efficient and orderly manner.

e. Wide variations existed in how the Services used their accounting and financial management systems associated with the Operation and Maintenance (O&M) appropriation supporting Vietnam combat operations. One common feature in the initial buildup stage was the performance of formal appropriation accounting at a location outside Vietnam. The Army, Navy, and Marine Corps still have this common feature. However, the Air Force initiated in-country accounting for O&M funds supporting combat operations as soon as an adequate financial management capability was established in Vietnam early in 1966. The Navy and Marine Corps had O&M accounting systems for inventories that had been purchased from the stock fund and continued this statistical accounting upon deployment of units to Vietnam with only minor administrative adjustments. On the other hand, because of the lack of trained personnel and adequate computer support, the Army did not elect to financially account in-country for inventories until 1969 when a system of financial inventory accounting was established for depots. Despite these differences, all of the Services recognized the need for financial information to properly manage and justify resources needed to accomplish their assigned combat mission.

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f. Each Service made independent decisions based on experience or policy on whether to finance in-country inventories supporting combat operations with stock fund or O&M funds. The Army and Marine Corps elected not to extend the stock fund to Vietnam. They considered the financial inventory accounting requirement and other management restraints associated with a stock fund operation too burdensome in a combat environment. The Navy continued its normal employment of stock fund in logistic support ships. It also elected to establish a stock fund operation at the Naval Support Activity, Da Nang, when assigned common supply responsibilities for I Corps Tactical Zone. The Air Force, whose policy had been to exclude stock fund operations from combat areas, elected to extend stock fund operations in Vietnam and Thailand when Project Priority Improved Management Effort (PRIME) required this procedure elsewhere. The reason for this decision was to maintain a standard base supply operation at all U. S. Air Force bases.

g. Prior to 1965, it had been the Department of Defense policy to limit auditing activities outside the continental United States to noncombat areas. In June 1966, the General Accounting Office suggested to the Congress that audit coverage be expanded to cover military contracts and activities in South Vietnam. Based on this suggestion, the Congress instructed the Secretary of Defense to initiate action to increase audit coverage of those financial areas and organizations associated with the combat effort in South Vietnam. Subsequent audits proved to be a useful management tool for combat commanders. They provided data to be used as a basis for identifying and organizing procedural improvements. In the conduct of audits, however, care had to be exercised to ensure that there was no interference with combat operations and the effective support of these operations.

h. Industrial funds were managed in accordance with routine Department of Defense procedures. A few problems arose where there was insufficient flexibility in manpower ceilings to meet the changing workloads that occurred during the transition to escalating logistic requirements.

i. Military assistance to allied forces had been provided by the United States for the past three decades. Before the Vietnam conflict intensified, MAP procedures were well established and functioning efficiently. As the conflict intensified, MAP procedures proved to be impractical, cumbersome, and insufficiently responsive for the unique combat environment that was developing in SE Asia. As a result, military assistance funding procedures were realigned to coincide with those of the military departments of the United States and were established as Military Assistance Service Funded (MASF) procedures. This system provided that the support of the South Vietnamese Armed Forces and other free world forces engaged in Vietnam would be programmed within the budgets of the military departments of the United States. The MASF procedures have proved to be effective and have provided the necessary flexibility and responsive support required.

j. The remainder of this chapter summarizes the major lessons learned and lists the recommendations that are developed within the monograph.

## 2. FINANCING OF OPERATIONAL EXPENSES

### a. Lesson Learned

Vietnam experience has proved that financial management techniques, when utilized to an appropriate degree, could be useful tools in the effective and efficient management of materiel in combat areas. Financial management systems for Operations and Maintenance funds supporting combat operations are most effective when they are mechanized, require a minimum change from the normal Service system, and provide for the distribution of materiel cost to appropriate cost accounts.

### b. Recommendation

(FM-1) The Services, when planning contingencies, outline appropriate financial management systems for Operation and Maintenance funds supporting operations in the combat areas. Such systems should:

- (a) Be appropriate to the combat environment.
- (b) Avoid extension of financial accounting to a level that interferes with combat operations or places an undue administrative burden on combat organizations or their logistic support units.
- (c) Be mechanized to the extent practicable.
- (d) Be integrated with the Service's total resource management system.
- (e) Parallel the Service's normal system to the extent practicable.
- (f) Identify expense materiel with an appropriate cost account.
- (g) Use financial information in the determination of requirements and identification of areas for improved management.
- (h) Provide useful reports to appropriate levels having management responsibilities.

### 3. FUNDING OF INVENTORIES OF EXPENSE ITEMS

#### a. Lessons Learned

(1) The use of stock funds, with adequate capitalization and when not constrained by apportionment procedures, could be an effective and efficient procedure for financing those supply system inventories that support and complement user stocks. However, within the broad framework of established Office of the Secretary of Defense stock fund policy, the Services needed the flexibility to organize their stock fund operations in a manner that best supported the accomplishment of their assigned missions.

(2) The Office of the Secretary of Defense procedures for stock fund program review and control have made Bureau of the Budget apportionment of stock fund unnecessary to ensure the most effective and economical use of funds. In addition, authority to maintain minimum cash balances in and to transfer capital between working capital funds provided by the Congress on an annual basis since FY 66 will be needed indefinitely for efficient management of resources.

(3) In general, since the end of FY 66, stock fund cash balances have been low in relation to the volume of business processed.

#### b. Recommendations

(FM-2) The Office of the Secretary of Defense establish with the Bureau of Budget the conditions required to obtain apportionment exemptions for stock funds and a schedule for qualifying each fund for exemption.

(FM-3) The Office of the Secretary of Defense seek permanent statutory authority (replacing the general provision included annually in the Defense Appropriation Act) to permit sufficient cash balance of working capital funds to be only the amount needed to cover disbursements and to authorize transfers of capital between working capital funds.

(FM-4) To support sound management, the Office of the Secretary of Defense program more adequate cash balances in stock funds, including a greater allowance for unanticipated program changes, so that the planned balance in each fund should be equal to at least 30 days of disbursements.



#### 4. INVESTMENT COSTS—CONSTRUCTION

##### a. Lesson Learned

A dynamic warfare situation, such as the Vietnam conflict, results in rapidly changing requirements for urgent military construction. Although some modifications and adjustments have been made, the procedures for justification, programming, and budgeting extended well beyond that needed for the overall level of effort and program control and continued to be basically the same as used in the peacetime—the line item oriented military construction process. These procedures involved much extraneous administrative effort, introduced undesirable time delays, were not sufficiently flexible, and imposed difficulties in the application of construction resources. In short, military construction procedures proved unsuitable for use in a warfare situation.

##### b. Recommendation

(The Construction Monograph contains a recommendation for the establishment of a new Contingency Construction Appropriation.)

#### 5. AUDITING IN COMBAT ZONES

##### a. Lesson Learned

Experience in Vietnam has established the feasibility and worth of auditing military contracts and activities in a combat area when audits are conducted in such a fashion as to ensure that there is no interference with combat operations and the effective support of these operations.

#### 6. INDUSTRIAL FUNDS

##### a. Lesson Learned

Civilian personnel ceilings in industrially funded activities adversely affected management of those activities subject to wide variation in workload. Exclusion of industrial-funded activities from personnel ceilings would facilitate timely adjustments of personnel staffing to accommodate workload variations. Should overriding considerations preclude the exclusion of all personnel in industrially funded activities from ceilings, at least the wage board employees who are utilized in the type of work where fluctuations in requirements are relatively greater than in other areas of work should be excluded.

##### b. Recommendation

(FM-6) The Secretary of Defense request the Director, Bureau of the Budget, to exclude wage board employees of industrially funded activities from manpower ceilings and to permit employment levels to fluctuate with workload and available funding of those activities.

#### 7. MILITARY ASSISTANCE PROGRAM

##### a. Lesson Learned

Peacetime Military Assistance Program funding procedures proved impractical in a conflict like Vietnam, which has involved large numbers of U. S. and free world forces. The Military Assistance Service Funded procedures, which became an integral part of the Department of Defense financial management system, proved to have the funding flexibility and responsiveness required in this area of logistic support.

## **11. FOREIGN ASSISTANCE SUMMARY**

## FOREIGN ASSISTANCE SUMMARY

1. OVERVIEW. What was, in the beginning, a series of independent applications of resources to achieve single, well-defined foreign assistance objectives has matured into a worldwide multi-billion-dollar annual program of economic and military assistance. This assistance has been designed to support U.S. overall foreign policy. In The Foreign Assistance Act of 1961, as amended, both the Congress and the President acted to strengthen the direction of U.S. foreign assistance programs by consolidating prior statutes in a law that provided for an integrated assistance program. However, President Kennedy's memorandum of 27 May 1961 and President Nixon's letter of 9 December 1969, both addressed to the Chiefs of American Diplomatic Missions, established and maintained two distinct and clear lines of authority, responsibility, and communication for the execution of U.S. activities during the conduct of combat support in countries where both an ambassador and an area military commander are present. Because the overall foreign assistance effort has been fully supported from a variety of fund sources, this monograph has focused on the need for improved definition, coordination, and control of U.S. assistance programs supporting military contingencies. Particular emphasis has been given to the impact on U.S. military logistic operations of unprogrammed military assistance for U.S. allied efforts and the Agency for International Development's efforts in support of the Vietnamese populace.

a. The Republic of Vietnam was in the embryonic stages of development in 1964. Because of Vietcong activity, the elements required to sustain an economy and population were rapidly moving beyond the control of the Government of Vietnam. With the decision to commit U.S. combat forces to the defense of the Vietnamese Government in March 1965 and to radically increase the level of support, the United States was faced, aside from logistic requirements for U.S. forces, with supplying the equivalent of 100 percent of the Republic of Vietnam Armed Forces materiel requirements. Deployments of Free World Military Assistance Forces were predicated on the reequipping and sustaining of the operations of all units deployed to Vietnam, with the exception of Australian and New Zealand forces. As the Vietnamese economy began to deteriorate in late 1965, U.S. civil aid efforts increased vastly. It was in this environment of expanding U.S. military and civil assistance support that the coordinating interface between U.S. implementing agencies and between the U.S. Government and the governments of the allies receiving contingency support had to take place.

b. When faced with threat levels that were clearly envisioned during the planning stages, the United States reacted by resolving individual foreign assistance problem areas as they arose on a basis almost entirely different from that contemplated during the planning cycle. Virtually all planning assumptions were superseded by ad hoc actions. Even today, there is the continuing need for coordination between the Department of State and the Department of Defense regarding the planned disposition of Department of Defense assets in Vietnam.

c. The preceding paragraphs have summarized the parameters of the foreign assistance program for Vietnam and the environment in which this program was to operate. The review served to focus attention on two primary topic areas for analysis. First, the necessity for coordination and the resultant points of intergovernmental and intragovernmental interface must be identified; and, second, foreign assistance planning for support of military contingencies should be based on clearly defined areas of responsibility and on current, realistic assumptions. The balance of this chapter summarizes the major lessons learned and lists the recommendations developed within the monograph.

## 2. INTERFACE AND COORDINATION

### a. Lessons Learned

(1) Considering the coordination problems within the U. S. Government on civil support in Vietnam, it seems clear that for future contingencies in underdeveloped countries, the primary areas of intergovernmental and intragovernmental interface must be identified. Timely agreements as to who controls what and how differences are to be resolved must be addressed. An earlier delegation of authority and responsibility for execution of a coordinated U. S. effort to an on-the-scene manager could have resulted in more responsive, timely, and effective distribution of resources.

(2) The impact of the autonomy of the Government of Vietnam was a major consideration in the conduct of contingency logistic operations; however, this was not clearly recognized until intergovernmental coordination problems developed in transportation and the Port of Saigon activities.

(3) Requirements determinations were inadequate.

(a) Military assistance logistic support:

1. Quid pro quo agreements between the United States and the Korean and Thai Governments superimposed funding and materiel requirements on logistic systems that were already extended as a result of meeting U. S. force support requirements.

2. Delays in defining military missions and task assignments for U. S. allies until the start of deployment impaired timely definition of military assistance requirements.

3. The U. S. military advisory effort, in some instances, was hampered by equipment that did not match the level of sophistication and the mission and task assignment of U. S. allies, which resulted in the delivery of some materiel that was beyond the competence and requirements of the recipient forces.

(b) Civil sector logistic support requirements have not adequately considered the impact of proposed military activity.

(c) Although the overall foreign assistance effort has been fully supported, this effort has not always been accomplished in the most effective and efficient manner because of the lack of proper interface between military and civil elements.

(4) Retention of civil sector responsibilities by the Agency for International Development found that agency with an immediate, unexpected logistic operations function for which it was not manned. Except for the temporary Agency for International Development organization in and for Vietnam activities, the Agency for International Development is not currently staffed to plan or assume these civil sector responsibilities in support of other possible contingencies.

(5) The controls of financial management and program visibility were limited because of fund source fragmentation that resulted in the ill-defined assignment of management responsibility. Although adequate fund availability in the military assistance and civil aid sectors of U. S. activity in Vietnam was achieved, the full parameters of the foreign assistance program were never formally defined.

(6) By identifying all the program elements of the Vietnam Assistance Program, the points of interface between the U. S. and Vietnamese Governments and between various responsible U. S. agencies could have been directly identified and consolidated in a top-level management network. This network could have displayed the interrelationships and time phasing of the actions and resources required for achievement of the program objectives and could have been employed in measurements of progress.

b. Recommendation

(FA-1) The Secretary of Defense recommend to the Secretary of State that contingency operation interface requirements be introduced into the National Security Council System for study and resolution, with a view toward making a clear determination and assignment of areas of inter-departmental responsibilities.

3. PLANNING TO ACCOMMODATE THE IMPACT OF FOREIGN ASSISTANCE ON U. S. MILITARY LOGISTIC OPERATIONS

a. Lessons Learned

(1) Assumptions. Planning assumptions concerning support of U. S. allies could have better reflected precedent and existing facts:

(a) Increasingly austere Military Assistance Program appropriations have been, of necessity, primarily dedicated to operating costs, rather than investment costs, since U. S. Asian allies have generally been unable to finance and support their armed forces independently.

(b) The escalation of the conflict in SE Asia found U. S. allies equipped with some Military Assistance Program furnished table of organization and equipment materiel that was obsolescent or nonstandard and was in large part subsequently replaced to improve their combat effectiveness and to facilitate support from U. S. stocks.

(c) In Vietnam, as in most other conflicts, a requirement developed to equip indigenous and some third-country forces when it became apparent that support would not otherwise be available.

(d) There have been instances where indigenous and third-country armed forces requirements have taken precedence over U. S. requirements.

(e) Experience in Vietnam has indicated that in many types of future contingencies, it can be anticipated that the host government will retain its autonomy and that committed third-country forces will retain direction and control of their armed forces.

(2) Contingency Planning

(a) The plans for logistic support to allied military forces provide only general guidance in resupply and minimal reequipment for existing host-government force levels and for envisioned free world allied deployments to the area of contingency operations. There has been little identification of specific assets to be applied in combat military assistance and essentially no recognition of probable force augmentation.

(b) Military plans have envisioned assumption of civil sector operations by military civil affairs units as the tempo of military activity increased. These functions were retained by the Agency for International Development in Vietnam despite its lack of experience, staff, organization, or plan for providing wartime civil sector support.

(c) Planning for civil sector support in combat areas is a responsibility of the U. S. Army; however, in Vietnam execution was undertaken by the Agency for International Development. Whether the U. S. military or the Agency for International Development (or a combination of both) provides civil sector support during a contingency should be decided in advance after considering the envisioned nature of the operation and the relationships between the United States and the participants. Both planning and execution responsibilities should be assigned to the same agency or department.

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(3) The lack of logistic guidance, prior to FY 70, to provide war reserves for allies placed additional support requirements on normal service operating stocks and generated additional procurement requirements.

(4) The U. S. plans to meet foreign materiel requirements for support of contingency operations in underdeveloped countries should provide accelerated logistics management training for host-government logistic personnel.

(5) Using Vietnam as an example, it has been shown that several of the planning assumptions in the area of military and civil assistance have been invalidated by events. The experiences of Vietnam, however, point up the absolute requirement for coordination and integration of the interagency planning requirements, to define responsibilities, and to set forth planning for contingency operations. Use of the National Security Council System to consider the basic planning assumptions for use by both the Department of State and the Department of Defense should result in better and more responsive contingency plans than currently exist.

(6) The U. S. Vietnamization and National Development policy has been developed by the National Security Council and ordered implemented by the President. To date, Vietnamization has involved a large turnover of military hardware and facilities to the Republic of Vietnam Armed Forces; near-term support of these items is being reasonably well provided. There is, however, a continuing lack of coordination between the Agency for International Development and the Department of Defense in identifying long-term support responsibilities and resource requirements for Department of Defense assets that could properly be turned over to the National Development Program rather than to the Republic of Vietnam Armed Forces.

#### b. Recommendations

(FA-2) The Secretary of Defense recommend to the Secretary of State that the areas listed below be introduced into the National Security Council System for study and resolution.

(a) Definition and assignment of contingency planning requirements, contingency operations responsibility, and basic planning assumptions to involved U. S. Government departments and agencies.

(b) Examination of the precedents of the Vietnam conflict to ensure that planning requirements are fully defined and that realistic planning assumptions are employed in connection with enhanced military assistance and supporting civil assistance to the host government and allied forces involved in contingency operations.

(c) Consideration of the advantages to be gained by the establishment of an advanced "management system that includes: the definition of objectives and programs for United States Foreign Assistance; the development of quantitative indicators of progress toward these objectives; the orderly consideration of alternative means for accomplishing such objectives; and the adoption of methods for comparing actual results of programs and projects with those anticipated when they were undertaken."<sup>1</sup>

(FA-3) The Secretary of Defense review, with the Secretary of State and the Administrator of the Agency for International Development (or its successor agency), the planned disposition of Department of Defense assets in Vietnam to coordinate planning for long-term support of assets being turned over to the Government of Vietnam.

<sup>1</sup>Quoted from The Foreign Assistance Act of 1961, as amended, Art. 621A.

## **12. LOGISTICS PLANNING SUMMARY**

# LOGISTICS PLANNING SUMMARY

## 1. OVERVIEW

a. Adequate logistic support for the military forces of the United States requires extensive planning throughout the Department of Defense. The basic purpose of logistics planning is twofold: first, to establish logistic requirements relative to both the total force structure and special contingency plans; second, to develop a set of actions, utilizing the capability acquired on the basis of these requirements, to be followed in response to a contingency situation. The principal planning mechanism for providing logistic resources is the Planning, Programming, and Budgeting System, through which requirements are programmed and funded to produce a capability.

b. In general, the operation plans that had been developed for SE Asia contingencies proved to be realistic and complete. They had correctly identified the majority of the logistic shortfalls (e.g., port constraints) that were to occur during the buildup phase. Many of the problems that developed, therefore, were the result of inadequate follow-up, either to justify and obtain required resources or to adjust the operation plan to available logistic resources, rather than the result of an inherent weakness in the plans themselves.

c. The review of planning systems and procedures indicated that evolutionary refinements were made during the Vietnam era to enhance both responsiveness and control. However, further improvements can be made. Problems arose because of the multiplicity of plans, line items, and organizations involved in the planning process; confusion in terminology; inadequate asset visibility; and turbulence in guidance.

d. The elements (e.g., overseas pipeline and D-to-P levels) included in the Logistics Guidance issued annually by the Office of the Secretary of Defense for the Services' use in computing requirements changed during the 1965-1970 time frame. These changes were made in response to the Services' need for additional authorizations, as well as to reflect controls desired by the Office of the Secretary of Defense. The computation of principal item requirements was not seriously hampered; but, because of the vast number of line items and the sequential and automated aspects of the computational process, problems were experienced with secondary items. These were further complicated by the late date, relative to budget submission schedules, of issuance of approved guidance during several of the included years.

e. The contingency planning process, as implemented in the logistics planning for Vietnam operations, was basically sound and flexible and capable of rapid expansion to meet wartime requirements. The Board's analysis of the contingency planning process indicated that improvements can be made in two essential areas:

(1) Reduction of the planning workload imposed by the necessity to continually update a large number of contingency plans.

(2) Establishment of the credibility of logistic requirements to support contingency plans, particularly the hard-core requirements of those contingency plans that will provide a capability to support national strategy.

The conceptual basis for improving the contingency planning process in these areas is contained in the proposed Joint Operation Planning System, currently under development by the Joint Chiefs of Staff. This system provides criteria for the selection of a relatively small number of plans for complete, detailed planning. The plans selected for complete planning are designated OPLANS. Restricting the number of plans requiring detailed planning will reduce the planning workload.



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The credibility of hard-core contingency war reserve requirements will be enhanced by the Operation Plan Package Appraisal. This appraisal evaluates a designated set of OPLANs to determine if concurrent execution is feasible and supportable. The appraisal process will therefore identify logistic shortfalls that establish credible hard-core war reserve requirements related to contingency plans.

f. Lack of standard terminology has resulted in war reserve programs that are not easily understood or particularly well defined. For example, current war reserve concepts relate to mobilization of forces rather than to more realistic criteria of contingency operations. The many different terms used within the Department of Defense to classify war reserve materiel have added to the confusion. It is clear that a reorientation of terminology is necessary.

g. Procedures must be implemented that will provide the necessary visibility of war reserves to key levels of command for management and appraisal. To enhance the credibility of secondary-item acquisition objectives, the Services need to implement positive programs to ensure that only hard-core items are included and that both requirement and asset figures are accurate. The Air Force system is adequate to support its mission.

h. Industrial mobilization production planning has as its objective adequate and responsive utilization of the U.S. industrial base to produce combat consumables and other materiel of war at the rate required by the Armed Forces. The program, as it existed prior to and during the initial phase of the Vietnam era, was of limited value because it lacked funding support and management emphasis during the period 1958 through 1966. Lack of support and emphasis led to a deterioration of the production base for defense needs in many areas, and only now is this base beginning to receive support. What little industrial mobilization planning had been accomplished was ineffectively utilized because of the competitive procurement environment and the lack of invoking industrial mobilization plans. In addition, the U.S. production base was supporting an expanding civilian economy, which had an adverse effect on the responsiveness of the industrial base to Vietnam requirements.

i. The preceding paragraphs briefly summarize those major aspects of logistics planning covered in this monograph. The balance of this chapter presents the major lessons learned and lists the most important 9 of the 14 recommendations developed within the monograph.

## 2. REQUIREMENTS FORECASTING

### a. Lessons Learned

(1) In general, Logistics Guidance provided an adequate basis for the calculation of principal item requirements for support of SE Asia operations. The roles, missions, size, and organization of each of the Services were factors that dictated the organizational level at which the functions of requirements determinations and computations were performed. Service requirements forecasting processes for principal items were adequate for support of Vietnam and should be retained.

(2) The short period of time available for computing requirements for secondary items (from the time Logistics Guidance was issued until the date budget programs had to be submitted) created a computational problem. This problem existed even though the forecasting function had been computerized. Changes in the fundamental elements authorized in Logistics Guidance (e.g., overseas pipeline, post-D-Day safety level, training, and D-to-P authorizations) required modification of basic computer programs. This modification was both time consuming and expensive when the computation process had to be done on short notice. Conversely, changes in the numerical values of these elements require only a reprocessing of data that could be accomplished at a nominal cost in time and dollars.

### b. Recommendation

(LP-1) The Secretary of Defense guidance concerning logistics be published as stable regulatory documents to facilitate computerized development of materiel requirements.

Fundamental elements such as overseas pipeline, post-D-Day safety level, training, and D-to-P authorizations should be stable elements of the Logistics Guidance, although the value for any element may change. Further, when changes to the list of fundamental elements are necessary, they should be published 1 year before the date the Services and Defense Agencies have to submit budgets incorporating such changes to the Office of the Secretary of Defense.

### 3. CONTINGENCY PLANNING

#### a. Lessons Learned

(1) The contingency plans in being for SE Asia operations were generally well-conceived, addressed logistics in detail, and identified shortfalls that would impact on the conduct of operations. Action, however, had not been taken to alleviate all the identified logistic shortfalls prior to the execution of combat operations. The adverse impact of these shortfalls on operations in SE Asia indicated that a higher degree of positive follow-through action is needed to ensure that total resource capability acquired by the Services' logistic systems is adequate to meet both their own force-structure-related materiel requirements and the Special Contingency War Reserve requirements developed within the unified command logistics planning system. Thus, Vietnam experience demonstrated that, for maximum effectiveness, planning for the logistic support aspects of contingency plans should include the following steps:

(a) Development of credible resource requirements to support a desired military posture.

(b) Ascertainment of whether the objectives of a special contingency plan can be supported with available resources. Shortfalls in on-hand or programmed resources should be formally identified and used to establish additional requirements in the Planning, Programming, and Budgeting System.

(c) Modification of contingency plans as may be required to reduce the objectives to those that are compatible with available resources or funding, or to reflect the increased capability to attain objectives resulting from increased assets.

(2) Accomplishment of the last two of the preceding steps was not and will not be feasible for all contingency plans. The administrative workload associated with conducting complete, detailed planning for all plans and determining the capability of supporting all plans is prohibitive. In addition, funding constraints will never permit procurement of the assets required to support all plans. Therefore, selectivity criteria must be established to identify those plans that warrant complete processing. The Joint Chiefs of Staff are currently developing a Joint Operation Planning System to break logistics planning for contingencies into manageable segments. This system proposes to divide contingency plans into two types of plans:

(a) Complete plans (OPLANS)

(b) Concept plans (CONPLANS).

Complete plans will be prepared for only those contingency situations wherein execution would (1) tax total resources (either force, logistic, or mobility) available to support the plan or (2) be likely to occur within the Joint Strategic Capabilities Plan time frame. Concept plans will be abbreviated plans that will be fully developed when necessary. Complete plans will be developed in full detail and the review process will analyze logistic support capabilities and requirements.

(3) Two types of reviews are provided:

(a) Individual plan review for each complete plan.

(b) Review of a designated set of complete plans in an Operation Plan Package Appraisal, which will test the feasibility of concurrent execution of the two or more plans in the set.

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(4) Although provided for under current procedures, an adequate logistic appraisal of the package of contingency plans that collectively identify what resources are required to implement military strategy (as defined in the Joint Strategic Capabilities Plan) has never been accomplished. The package of contingency plans scheduled (as part of the Joint Operation Planning System) to undergo an annual Operation Plan Package Appraisal will serve this purpose if identified shortfalls are treated as hard-core requirements. Such Special Contingency War Reserve requirements would be additive to the total Force Structure War Reserve requirements and should be strongly supported for funding in the Planning, Programming, and Budgeting System. A lesser priority would be afforded identified shortfalls in plans selected for complete processing (OPLANS) but not included in the Operation Plan Package Appraisal.

### b. Recommendations

(LP-2) The Joint Chiefs of Staff, in coordination with the Services, expedite the implementation of the proposed procedures currently under development in the Joint Operation Planning System.

(LP-3) The Joint Chiefs of Staff and the Services use those contingency plans, designated as complete plans, as follows:

(a) The critical shortfalls identified in those complete operation plans designated to undergo an Operation Plan Package Appraisal to determine logistic supportability should be validated as credible hard-core Special Contingency War Reserve requirements. These requirements would be additive to the total Force Structure War Reserve requirements and be recognized by the Department of Defense in the Planning, Programming, and Budgeting System. If the economic or political situation or higher Service priorities preclude funding, then the requirement should remain valid until satisfied.

(b) The logistic requirements of those complete operation plans that are not in the designated package will be compared with logistic assets, on hand or programmed, to establish additional Special Contingency War Reserve requirements that should also be considered for additional support under the Planning, Programming, and Budgeting System.

## 4. WAR RESERVES

### a. Lessons Learned

(1) The multiplicity of terms, some with entirely different applications, used throughout the Department of Defense in the management of war reserves has seriously impaired effectiveness and understanding of the system. For example, as noted in the chapter on contingency planning, current concepts and procedures do not clearly distinguish between those war reserves directly related to support of the force structure and those required for special support of contingency plans. This ambiguity has made it difficult for component commands to identify and support Special Contingency War Reserves. Fewer and better defined classifications of war reserve materiel are needed.

(2) An excessive range of war reserve secondary items causes a lack of credibility at higher level budget reviews, creates almost insurmountable management problems, and requires vast amounts of clerical and management labor.

(3) Each Service must maintain status information on war reserves to permit sound logistic appraisals and to develop and support funding requirements. The Air Force has developed a system that fulfills these objectives and reflects a deployment concept that is dependent on a relatively small number of line items of war reserve materiel. The other Services now have ongoing programs to obtain improved visibility over their war reserve assets.

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#### b. Recommendations

(LP-5) The Joint Chiefs of Staff provide common terminology so that for all purposes the identification and management of all war reserves, except Industrial Mobilization Facilities, be accomplished within the following three major categories:

(a) Force Structure War Reserves—Those materiel reserves authorized by the Secretary of Defense for the support of, and based upon the composition of, the approved forces shown in the Five Year Defense Program.

(b) Special Contingency War Reserves—Those materiel reserves that are authorized, procured, and maintained to support unique requirements identified by logistic appraisal of specific operation plans that are not contained in or justified by the composition of the approved force structure.

(c) Economic Retention War Reserves—Those on-hand assets of war reserve materiel that are excess to levels approved for procurement by the Secretary of Defense and that can be economically held against some plausible future requirement.

(LP-10) Each Service limit requirements for secondary items of Force Structure War Reserves to a minimum range of items necessary to sustain combat until additional resources can be made available from production. Initially, each Service should establish an arbitrary ceiling list of minimum requirements so as to give credibility for funding support to the essential hard-core items.

(LP-11) The Services' ongoing programs to obtain visibility over War Reserve Assets be actively pursued to the extent necessary to establish a pyramidal reporting system with focal points at each concerned echelon to maintain cognizance of the War Reserve Program.

#### 5. INDUSTRIAL MOBILIZATION PRODUCTION PLANNING

##### a. Lesson Learned

Industrial mobilization production requirements were unrealistically low in many areas at the beginning of the Vietnam conflict. This condition, combined with low budgetary support for the industrial base, resulted in a premature loss of facilities needed later to produce Vietnam requirements and impaired U. S. worldwide readiness for other contingencies. In retrospect, had longer-range, more-stable guidance been provided for industrial mobilization production planning, requirements would have been more realistic, overall costs would have been less, and responsiveness to Vietnam needs would have been more effective.

##### b. Recommendations

(LP-12) The Joint Chiefs of Staff and the Office of the Secretary of Defense establish stable guidance for industrial mobilization production planning so that long-range industrial mobilization requirements can be supported independently of the short-term variations in force structure and funding.

(LP-13) After the establishment of stable guidance for long-range industrial mobilization production planning requirements, the military departments identify and establish a sustaining base capable of supporting minimum essential long-range mobilization production requirements.

(LP-14) After approval of this sustaining base by the Office of the Secretary of Defense, the military departments prepare plans for modernization and maintenance of Government-owned facilities included in the sustaining base to achieve improved responsiveness and capacity for future contingencies.

### **13. MAINTENANCE SUMMARY**

## MAINTENANCE SUMMARY

### 1. OVERVIEW

a. Measured in personnel and dollar costs, maintenance is the major functional element of Department of Defense logistics. The weapon system and equipment readiness posture of the Armed Forces depends on maintenance support in the combat area, offshore, and in the continental United States (CONUS). That effective maintenance and responsive systems existed in the Services was attested to by the high equipment operational ready rates attained in Southeast Asia. However, Vietnam experience reaffirmed the fact that responsive maintenance procedures alone will not suffice. In-being maintenance units are essential to provide support in the early phases of combat operations. The accomplishments of maintenance personnel were highly creditable, but there were major problems, especially in the early days of the conflict. The Southeast Asia environment, combining abrasive sand with heat and humidity, increased the need for maintenance. In addition, because of the interrelation with the functions of supply management and transportation (see monographs), initial difficulties in receiving, identifying, warehousing, and issuing spares and repair parts had an adverse impact on the maintenance function.

b. Availability and utilization of trained maintenance personnel varied among the Services because of differences in mission, organization, and ratio of military to civilian billets, as well as special situations that developed during the conflict. Each of the Services experienced military personnel turbulence as a result of rotation policies and assignment practices and all were required to draw down personnel from units not directly involved in Southeast Asia.

(1) The Army, unlike the other Services, was substantially manned with 2-year draftees and 3-year first term enlistees. Further, many of the Army's intermediate and depot-level maintenance activities were highly civilianized. The combination of these two factors restricted the Army in providing adequate practical training prior to deployment and necessitated a reliance on augmentation with contract maintenance personnel at intermediate and depot maintenance levels. The Army's maintenance problems were further complicated by the introduction, beginning in late 1966, of the Combat Support To The Army (COSTAR) organizational concept. This concept, not adequately field tested, resulted in a reorganization from technical service oriented maintenance units to functionalized maintenance organizations. An evaluation, completed in June 1968, revealed that nondivisional direct support maintenance organizations did not have the required personnel and skills to perform maintenance and supply functions for all equipments of field Army units.

(2) Incentives were lacking for high-quality U.S. civilian employees to accept overseas employment. This was particularly evident at the Navy's Western Pacific (WESTPAC) Ship Repair Facilities and constrained the supervision and training of indigenous workers. In addition, problems were experienced at CONUS naval shipyards, naval aircraft rework facilities, and Air Force air materiel areas as a result of civilian personnel ceilings and overtime limitations.

c. The existence of a maintenance capability at offshore bases enabled all Services to respond effectively to the Vietnam contingency. The Army and Marine Corps found it expedient to convert offshore intermediate repair capabilities to limited depot-level maintenance. The Navy's WESTPAC Ship Repair Facilities provided depot-level maintenance support for the fleet, accomplished activations and conversions for ships and craft for service in Vietnam, and provided direct in-country maintenance support. Further, Navy experience demonstrated the value of the Advanced Base Facility Component System through its contribution for the early establishment of fixed and mobile facilities in Vietnam for the repair of boats and craft. The Air Force, in consonance with its mobility concepts, first used offshore bases to provide an intermediate maintenance capability and later, with contract maintenance, provided some depot-level

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capability. In the continental United States, each Service had a responsive organic depot capability that was used effectively to meet the increased maintenance requirements created during the Vietnam era. These installations constituted both a facility and a manpower resource. Repair teams were used to extend depot-level maintenance support to combat activities in Southeast Asia. The success of this program was largely due to the skills these personnel developed in depots working on the same weapon systems that needed repair in the combat theater.

d. All Services operated under the policy of repair at the lowest possible organizational level. This policy was essential in some cases, such as sustaining operations of the fleet at sea, and did result in high readiness rates. On the other hand, application of this policy in Vietnam generated requirements for wide ranges of spares and repair parts, extensive facility development, and extensive support equipment and personnel. For example, the Air Force constructed air bases in Vietnam and Thailand that included the full range of intermediate maintenance facilities in each complex. The magnitude of in-country resources required to support the forward maintenance policy suggested the possibility of reducing total resource costs by reorienting the policy to perform less maintenance in-country and to increase the use of offshore and CONUS intermediate and depot facilities. In 1969, the Air Force revised its basic policy from maximum base self-sufficiency to one of optimum repair; and the Army, in its Maintenance Support Positive program, is modifying its traditional "as far forward as possible" policy to better utilize maintenance resources through replacement of components and modules. Repair level policies must, of course, be reflected in the early design and development phase of the weapon system life cycle. A disciplined approach to the consideration of the impact of such factors as reliability and maintainability on maintenance was developed during the 1965 to 1970 period and documented in DOD Guide 4100.35G, Integrated Logistic Support (ILS) Planning. In this regard, Vietnam experience again demonstrated the need for a greater tolerance for abuse in equipment selected for operational use.

e. All Services refined their management systems in support of maintenance during the Vietnam conflict. Some of these changes were made in response to an urgent need whereas others were evolutionary in nature. The Army intensified its management of critical components, assemblies, and major items, and expedited the handling of essential repair parts through implementation of the Closed Loop Support and Red Ball Express systems. The Navy benefited from increased application of the Standard Maintenance and Material Management (3M) system for aircraft and ships. The Marine Corps obtained improved asset visibility and readiness reporting through the implementation of the Marine Corps Unified Materiel Management (MUMMS) and Automated Readiness Evaluation (MARES) systems and also found it necessary to expand organization maintenance capabilities, modify controls, expedite supply actions, and introduce new equipment to achieve higher equipment readiness rates. The Air Force recognized the need for better visibility and tighter management of reparable assets at all levels. The necessary controls were achieved by means of three interlocking automatic data processing programs developed or refined during the Vietnam era.

f. The preceding paragraphs summarize the more important aspects of maintenance operations as they evolved in Southeast Asia. One key maintenance consideration, work that was deferred because of funding constraints or that will be required to rehabilitate equipment returned from Southeast Asia, will have its major impact in the future. This subject, the major lessons learned, and the most important 8 of the 17 recommendations developed within the monograph are addressed in the balance of this chapter. It should be noted that the lessons learned and recommendations developed through analyses of individual Services are, in the opinion of the Board, generally applicable to all Services.

## 2. ARMY MAINTENANCE

### a. Lessons Learned

(1) To overcome high deadline rates for certain types of equipment, the Army found it necessary to implement the Red Ball Express system in December 1965. This was a special supply and transportation procedure designed to expedite delivery of repair parts. Principal features of the system included direct submission of requirements to the Logistics

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Control Office, Pacific; rapid transmission of requisitions to supply source; and priority airlift to Vietnam. Since its inception a significant reduction in Not Operationally Ready--Supply (NORS) rates has been accomplished with an increase in equipment availability rates. The need for similar specialized logistics systems can be expected in future conflicts.

(2) Careful planning and programming were required to maintain a balance between equipment requirements and repair part availability. To improve the logistical support to military forces in Vietnam, the Closed Loop Support System was initiated in November 1966. In this system the functions of supply, maintenance, and retrograde were integrated to ensure that critical items were directed to specific customers at the appropriate time and that unserviceables were retrograded to designated repair and overhaul agencies. The effectiveness of the Closed Loop Support System was demonstrated by its ability to meet program requirements on a line-item basis. The strengths of the Closed Loop Support System should be retained and reflected in future logistics systems.

(3) As the rate of deployment of combat and logistic units into Vietnam increased in 1966, the maintenance capacity, in terms of military maintenance organizations, could not keep up with the rapidly increasing workload. The shortage of military personnel at the intermediate level, caused by an inadequate CONUS military rotational base and the decision not to call up the Reserves and the establishment of strict military ceilings, gave rise to the extensive use of contract maintenance. There is a need for establishing an adequately structured CONUS rotation base so that contract maintenance support can be held to a minimum. However, some use of contractor support should be anticipated and reflected in logistics planning as appropriate.

### b. Recommendation

(MT-3) The Services be specific in their planning on the necessity for contract maintenance personnel to augment an existing organic maintenance capability. Where contract maintenance augmentation is required, plans should address the following factors:

- (a) The size of the contractor force to be utilized.
- (b) The number of contractor firms proposed for employment.
- (c) Geographical locations proposed for assignment of maintenance contractors.

## 3. NAVY MAINTENANCE

### a. Lessons Learned

(1) Sustained combat operations in Southeast Asia again demonstrated the requirement for individual ships to have maintenance and repair self-sufficiency, as well as the importance of the mobile repair capability represented by tenders, floating dry docks, and repair ships in remote areas.

(2) The WESTPAC ships and aircraft depot-level repair facilities that were capable of expansion proved invaluable during the Vietnam era. They reduced the time ships and aircraft were off the line and minimized the cost of repairs.

(3) Airliftable mobile maintenance vans included in the Short Airfield for Tactical Support (SATS) system facilitated the prompt establishment of an organizational and intermediate level maintenance capability. Specially outfitted mobile vans proved their value also in the Philippines.

(4) When the buildup commenced, the Navy lacked sufficient maintenance support ships and craft in the active fleet to meet expanding Southeast Asia requirements. The use of ships and craft from the inactive fleet enabled the establishment of mobile in-country maintenance bases and augmentation of shore-based industrial facilities earlier than would have been possible. Their use emphasized the importance of retaining selective assets left over from prior wars.



#### 4. MARINE CORPS MAINTENANCE

a. Lessons Learned. A significant strength of the Marine Corps maintenance system was in its in-being structure of maintenance billets, manned at all echelons with military personnel from organization through depot level, which provided an adequate rotation base and which operated the same in peacetime as in wartime. The rapid and flexible structuring of maintenance support units was facilitated by the existing Marine Corps maintenance system, and was tailored to meet the equipment readiness requirements of supported combat units. A continuing high degree of equipment readiness resulted from this effective distribution of the maintenance workload. In recognition of the satisfactory Marine Corps experience in balanced civilian-military manning, the other Services in their decision of personnel allocation should give full recognition to the requirement for trained and skilled military maintenance personnel to meet maintenance demands when operational forces are first deployed.

#### 5. AIR FORCE MAINTENANCE

##### a. Lessons Learned

(1) The Air Force concepts of utilizing in-being forces deployed to forward operating bases during the initial stages of a contingency again worked well in Vietnam. The integration of the supply, maintenance, and transportation functions of the Air Force logistics systems, refined during the Vietnam era, proved its worth by supporting greatly increased flying hour programs during the Vietnam era with low NORS and Not Operationally Ready for Maintenance (NORM) rates.

(2) The Air Force recognized the need for better visibility and control of reparable assets. This was achieved during the Vietnam era through implementation of three interlocking management systems, Due-in-From-Maintenance (DIFM), the Management of Items Subject to Repair (MISTR), and the Air Force Recoverable Assembly Management System (AFRAMS).

(3) The Air Force deployed its units to Southeast Asia under the maximum base self-sufficiency maintenance concept, which dictated a requirement for the same type of equipment, facilities, skills, and extensive supply support in-theater as existed in the CONUS. Mobility concepts permitted rapid deployment and employment of Air Force combat units in Southeast Asia, but these deployments were hindered by the large amount of maintenance support personnel and equipment needed to carry out maximum base self-sufficiency maintenance. The Air Force recognized this problem and took two basic corrective actions. First, the maximum base self-sufficiency maintenance concept was revised to one of optimum repair to achieve a better balance between base and depot repair. Second, the Air Force began to develop and test the concept, as demonstrated by CORONET BARE, that mobility can be enhanced through design and use of lightweight equipment and relocatable, reusable, modular facilities.

##### b. Recommendation

(MT-7) The Services, in order to maintain operational effectiveness but reduce to the maximum extent possible the requirement for personnel skills, equipment, facilities, and supplies in forward operating locations and bases, review on an item-by-item basis their decisions on where and at what level an item should be repaired.

#### 6. DEFERRED MAINTENANCE

a. Lessons Learned. Deferred maintenance did not impair Service responsiveness to Southeast Asia requirements, but it did affect units not actively engaged in priority missions in support of combat operations. The inability to precisely predict the impact and cost of maintenance deferrals prevented supportable reclama for full resource support. Each Service may soon be faced with the prospect of inspecting and rehabilitating, as necessary, equipment being returned from Southeast Asia. The lack of adequate maintenance workload data, which has inhibited the Services' past ability to make optimal maintenance deferral decisions, will affect planning for the rehabilitation of equipment returned from Southeast Asia.

b. Recommendation

(MT-10) Service deferred maintenance be stratified to identify those hard-core requirements for support of readiness objectives and the segments of deferred maintenance requirements, including those not in hard-core requirements, where there is a clear indication that a significant adverse impact will result from further deferral.

7. MAINTENANCE SUPPORT CONSIDERATIONS DURING CONCEPT AND DEVELOPMENT

a. Lessons Learned. The DOD Guide 4100.35G, Integrated Logistic Support, presents many valuable concepts but does not adequately address the repair level decision. The interaction of operational and economic considerations combined with equipment characteristics determines the manner in which equipment will be supported and the degree of repair to be performed at each level of maintenance. It has been demonstrated that the impact of maintenance support considerations on initial provisioning costs and support costs throughout the operational life of the equipment is of such magnitude that decisions must be made early in the development phase of a weapon system. This is when significant tradeoffs can be made to minimize life cycle support costs. Repair level decisions must be made on an item-by-item basis as early as possible in the development phase. This activity must be identified as a separate but integrated element of support planning.

b. Recommendation

(MT-11) The Office of the Secretary of Defense amend the Integrated Logistic Support Planning Guide (DOD 4100.35G) to include a defined element entitled Repair Level Decision.

8. DEPOT MAINTENANCE

a. Lessons Learned. The depot-level maintenance capability of the military services provided the responsive capability required to support essential and urgent workloads during the Vietnam era. Contract maintenance was also used but was less responsive in many instances than organic activities. The organic capacity was increased by the limited use of overtime, when authorized, but total manpower was limited by ceiling controls. The effect was to place more work out to contract.

b. Recommendations

(MT-15) In recognition of the essentiality of a viable and responsive depot maintenance capability, the Services and the Office of the Secretary of Defense take steps to achieve a reasonably stable posture in their organic depot maintenance structure in the continental United States.

(MT-16) The Secretary of Defense continue to exclude industrially funded activities from overtime limitations.

9. REPARABLES

a. Lessons Learned. Vietnam experience again demonstrated that reparable are an important and costly part of logistics support and that effective reparable management can increase equipment availability and reduce new procurement. It was shown that effective reparable management requires a system that will provide the status of items undergoing or awaiting repair, ensure prompt retrograde of items not locally reparable, facilitate the expeditious intermediate or depot-level repair of these items, reduce new procurement to the maximum extent possible, and provide sufficient asset visibility to the inventory manager to redistribute assets consistent with worldwide Service requirements. Further, appropriate use should be made of air transportation to return reparable to repair facilities and to provide serviceable components to the theater of operations. This will require that adequate terminal facilities and techniques be provided to efficiently process reparable into the air transportation system.

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b. Recommendation

(MT-17) Each Service develop and refine reparable control systems for selected components which will:

(a) Ensure that, from the time of removal from a major end item, the location and status of each component is known at the proper management levels until it is repaired and returned to service or condemned and dropped for disposal.

(b) Make appropriate use of air transportation for movement of reparables.

**14. MILITARY PERSONNEL IN OPERATIONAL  
LOGISTICS SUMMARY**

## MILITARY PERSONNEL IN OPERATIONAL LOGISTICS SUMMARY

1. **OVERVIEW.** The nature of the war in Vietnam and the policies under which it was fought were unique in a number of ways that had significant impacts on Service requirements to provide logistic support to combat forces. Three major factors that affected the ability of the Services to provide the required logistical military personnel and units were the rapid acceleration of the buildup; the decision not to call up the Reserves, upon whom much of the logistic support planning had been based; and 1-year tours. At times the impact of these three factors forced resorting to alternate, lesser plans to accomplish logistical support of the combat forces. In spite of the problems and difficulties, the essential support requirements of the Services were fulfilled.

a. The Services met the requirement to provide logistical personnel and support units during the buildup of combat forces in the Republic of Vietnam, but there were times when logistical military units and specialized and highly trained personnel were not readily available. Delays of this nature did not unduly jeopardize mission accomplishment by combat forces, but they did adversely affect the timeliness, efficiency, and effectiveness of logistic support; the management of resources in Vietnam that caused diversion of some combat personnel to logistic duties; and the degree of supervision of contractor activities. The use of civilians, civilian contractors, and civilian technicians to supplement military personnel and military logistical support units was an essential element of the overall capability to meet logistical support requirements in South Vietnam, particularly in the early period of the force buildup. Thereafter, the deliberate policy to hold military support personnel to a minimum resulted in a more extensive use of civilians. As indicated in other monographs, it was necessary at times to extend such support into areas and roles more suitably and effectively fulfilled by military units.

b. The delays in meeting requirements for military units and personnel resulted from a combination of factors. Principal among these was the decision made early in the buildup that Reserve forces would not be recalled to active duty. This decision made it particularly difficult, in some cases almost impossible, for the Army to respond to immediate requirements for combat service support units. The decision not to call up the Reserves had other less direct impacts as well. Availability of Reserve units and personnel would have permitted rapid response to newly developed requirements. The sustaining and training base in the continental United States would have been strengthened. Replacement of key personnel in activities outside SE Asia would have substantially reduced the severe degradation in unit readiness that resulted from successive personnel drawdowns in these activities.

c. The decision not to recall the Reserves and the necessary expansion of the military services to meet Vietnam requirements created the immediate need for emergency programs to train large numbers of newly recruited personnel. The organization and preparation of new units for combat operations diverted personnel from other equally essential activities and, in effect, made training establishments of many commands whose primary mission was readiness to meet contingencies in other parts of the world.

d. Logistical activities in South Vietnam often experienced shortages of personnel with specific skills and technical training. In some cases, skill categories were deficient in the numbers required because of the civilianization of CONUS military activities and the constant decline in the retention rate of experienced military personnel. Concurrent with the decision not to call the Reserves was the determination to continue normal separations. Consequently, discharges at the end of periods of obligated service, resignations, and retirements were continued as in peacetime. The Army was most severely restricted by this policy. The shortages of technically trained middle management military logisticians in such fields as petroleum, ammunition,

transportation, supply, maintenance, data systems, and inventory management have been documented in the other monographs and volumes of the Joint Logistics Review Board.

e. Several manpower policies in effect during the Vietnam era reduced the free utilization of available military personnel. Among these were the 1-year tour with all of its ramifications, early release programs, rest and recuperation, and time limits on reexposure of Vietnam combat veterans. These policies had a favorable effect on military morale; however, they also contributed substantially to personnel turbulence throughout all the Services, since activities were continuously tapped for unexposed personnel to rotate to Vietnam and SE Asia. This turbulence, in turn, degraded readiness in both losing and gaining activities.

f. During the rapid buildup, new missions and tasks were assigned, often without basic lead time for essential personnel planning. This fact, coupled with the imposition of strictly enforced Service and overall ceilings on the numbers of military personnel in South Vietnam and SE Asia, contributed to delays in meeting personnel requirements for new logistical support organizations and to the expansion of existing ones. The Army's 1st Logistical Command, which was approved when supported troop strength was relatively low, arrived in Vietnam and found the supported troop strength so increased that its own authorized strength was completely unrealistic in terms of the logistical support it was required to provide. The Navy faced similar but lesser problems in meeting unanticipated responsibilities for the support of all U. S. and other Free World Military Assistance Forces ashore in I Corps Tactical Zone, and in support of inshore surveillance, river patrol, and mobile riverine operations.

g. Both the Secretary of Defense and the Services established systems to provide extensive and detailed justification of each requested increase in military personnel. These systems provided an effective means of achieving tight, centralized control of force deployments and of monitoring compliance with personnel ceilings. In some cases, such as the Tet Offensive of 1968, approvals were reached promptly. However, the systems were complex and often caused delays in the arrival of personnel units considered critical by field commanders to the discharge of assigned missions and tasks. Approval for Army logistical and engineer units was delayed by the detailed justification required by the personnel system. Despite the delays, no instance was found in which a commander indicated that logistical capability was degraded to the extent that an activity could not perform its mission. The efficiency and economy of that support was a different matter. In some cases, deficits in logistic capability, e. g., port and depot capabilities, resulted in problems that required several years to overcome.

h. The detailed review of military personnel by the Joint Logistics Review Board focused upon the use of military personnel in operational logistics. The review thus gave special attention to two primary topic areas:

- (1) Major Manpower Policies and Decisions
- (2) Generation of Force Requirements, the Review and Approval Process.

i. The preceding paragraphs have summarized the military personnel situation during the Vietnam era. The remaining paragraphs consist of a summary of lessons learned and the major recommendations that were developed.

## 2. MAJOR MANPOWER POLICIES AND DECISIONS

### a. Lessons Learned

(1) The decision not to call up Reserve forces, which effectively eliminated that source of trained personnel, indicated that contingency planning by the Services should provide alternatives that do not include the Reserve forces.

(2) Extensive use of civilian personnel was necessary in Vietnam, both as an interim measure and to augment military personnel in order to improve responsiveness of the required logistic support.

(3) Vietnam experiences again demonstrated that adequate lead time is required for the Services to plan, procure, and train logistical personnel. The time is particularly critical in the case of certain highly specialized, long-lead-time personnel and those logistical personnel who are needed to meet initial requirements. The requirement for lead time emphasized the importance of evaluating the long-range impacts of rigid personnel policies. Policies such as the 1-year tour of duty, guaranteed rest and recuperation, and nonutilization of pipeline personnel must be evaluated in advance of implementation, since they cause restrictions on the ready availability of skilled and experienced personnel.

(4) The extensive civilian staffing of logistics activities in CONUS detracted in varying degrees, by Service and by skills, from the adequacy of the training base for military personnel and its ability to provide trained military personnel either to meet initial requirements of the contingency or to ensure rotational flow of replacements.

b. Recommendations

(MP-1) Contingency planning include alternatives that provide efficient logistical manpower resources in the event that Reserve forces are not mobilized.

(MP-2) The Services review selected current and proposed contingency plans and evaluate the supportive personnel policies to ensure that an adequate training and rotational base by skill category is provided.

(MP-3) The Services develop and initiate plans and policies for restructuring the Active Forces to the extent necessary to provide the highly specialized, long-lead-time logistical personnel to meet requirements imposed by contingency plans.

3. GENERATION OF FORCE REQUIREMENTS, THE REVIEW AND APPROVAL PROCESS

a. Lessons Learned

(1) There were valid requirements for ceiling controls of military personnel in the Services and for the total of those deployed in Vietnam. The justification and approval process, which evolved from peacetime procedures, was complex and went into details well beyond those that appear to have been necessary for overall control. Satisfying these details often required a major and extensive effort in the theater of operations, contributed to delays in meeting requirements for increased logistic support, and detracted from the flexibility of the responsible commanders. In the enforcement of exact in-country ceilings, requirements were imposed for extremely precise reporting. Further complications were changes in ground rules and early uncertainties as to the criteria of judgment being applied in Washington. During a conflict situation every effort should be made to simplify the procedures of justification, review, and approval of personnel increases and to provide a maximum of flexibility to the responsible commanders to the extent consistent with the needs of overall control.

(2) The Vietnam experience highlighted the importance of a complete understanding at all levels of the justification and approval system in use, and the criteria of judgment.

## **15. PETROLEUM, OIL, AND LUBRICANTS SUMMARY**



## PETROLEUM, OIL, AND LUBRICANTS SUMMARY

### 1. OVERVIEW

a. Bulk fuels in sufficient quantities and of proper quality are one of the essential items for the successful conduct of modern military operations. Petroleum, oil, and lubricants (POL) support in Vietnam was responsive to the needs of the operating forces despite the extreme conditions encountered in an undeveloped country. Although POL was singled out in operational commanders' reports as one of the outstanding supply support performances of the conflict, the Board's review of the Vietnam operations has nevertheless identified many problems in fuel support.

b. The demands for fuel in support of the Vietnam conflict were high, particularly those for aircraft. These demands resulted from the use of high-performance aircraft of the Air Force, Navy, and Marines; the use of B52's; the extensive use of aircraft for logistics; and constant employment of large numbers of Army helicopters. Heavy dependence was placed on deliveries by fixed-wing aircraft and helicopters to outlying sites from main land-and-water enclaves. These deliveries were necessary because of the country-wide nature of the conflict, the insecurity and inadequacy of land lines of communications, and the extensive waterway system. The Army provided versatile and varied POL supply by the use of large numbers of tank trucks in conjunction with Y-boats, barges, and hundreds of miles of Army-constructed and Army-operated pipelines in support of Army, Navy, and Air Force operations. Extensive use was made of amphibious ship-to-shore delivery systems, coastal shuttle craft, bladders in landing craft, and bladders for delivery by air. Underway replenishment of aircraft fuel to carriers far surpassed even the records of World War II.

c. POL support during the military advisory phase had been furnished by commercial companies, including deliveries within Vietnam by subcontractors. With the deployment of U.S. combatant units, a military POL supply system was established in Vietnam to supplement the commercial system. Although consideration was given to the replacement of commercial support by the military system, the use of commercial facilities and services continued and expanded along with the military system. In addition to the normal responsibilities of each Service for the support of its forces, common supply was provided paralleling the other support responsibilities of the Navy in I Corps Tactical Zone (CTZ) area and the Army in all other CTZ areas.

d. POL storage in Vietnam was marginal at best and required extensive use of bladders, expeditionary systems, and floating storage on a continuous basis. Early efforts to induce contractors to build additional storage met with little success, and there were long delays in building semipermanent systems through service-sponsored programs to meet the needs of the expanding conflict. Consequently, overall costs of providing petroleum products were far higher than would have been necessary if an early decision had been made to construct sufficient steel military storage for the economic utilization of tankers.

e. The large tankers of the commercial fleet combined with the lack of an adequate storage capability at the deep-water ports resulted in the need for expensive transshipments of products through Japan and Singapore by smaller Military Sea Transport Service (MSTS) and commercial tankers. The continuing trend away from medium tankers on the part of industry to larger and larger ones poses serious problems for the future support of military operations.

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f. The continued extensive use of contractors for storage and delivery, the comingling of Government and commercial products throughout the Southeast Asia distribution system, and actions to avoid certain taxes imposed serious problems in inspection, property administration, other forms of contract administration, and accountability.

g. The preceding paragraphs have briefly summarized the POL logistics situation as it existed in the Vietnam era. The historical review on which the summary is based focused attention on three primary areas, which are treated in detail in this monograph for in-depth review and analysis. These areas are:

- (1) Role of Contractors in POL Support in Vietnam
- (2) Property Administration and Accounting
- (3) Special Support Problems.

h. In addition to those three areas selected by the Board for an in-depth review, the Board was also directed by the Secretary of Defense to analyze four unresolved recommendations from the October 1968 Report of the Department of Defense Petroleum Management Study Group.

i. The following paragraphs summarize the major lessons learned, list the most significant 21 of the 29 recommendations that resulted from the examination and analysis of POL support during the Vietnam era, and summarize the specific review requested by the Secretary of Defense in his memorandum of 8 May 1969.

### 2. ROLE OF CONTRACTORS IN POL SUPPORT IN VIETNAM

#### a. Lessons Learned

(1) Commercial POL support was a responsive means of providing POL support to U.S. forces in Vietnam until the buildup in 1965 when both military and commercial systems were required. However, the Vietnam experience showed that the oil industry should not be relied on to build efficient, integrated commercial facilities to keep pace with growing military demand unless there are Government commitments covered by specifically funded construction and service contracts. Therefore, the Government should be prepared to build sufficient facilities to meet increased military demand when contractors are not contractually committed to do so.

(2) Adequate Government-controlled POL facilities were never built. As a result, ships were held for floating storage, and costly transshipment of POL was required. Over \$25 million a year in transportation and service charges could have been saved by the construction of adequate Government POL storage and receipt facilities in Vietnam.

#### b. Recommendations

(PL-1) Contingency plans specifically address the following to the extent appropriate to the situation:

- (a) Initial use of floating storage
- (b) The construction of facilities adequate for the off-loading of large tankers, storage, and transshipment.

### 3. PROPERTY ADMINISTRATION AND ACCOUNTING

#### a. Lessons Learned

(1) The accounting problems that were encountered in POL support in Vietnam were primarily the result of a requirement for detailed financial accounting for reimbursement

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procedures based on the bulk fuels report.<sup>1</sup> However, many of the problems of a combat area will be solved only with the assignment of a qualified Contracting Officer's Representative in-country.

(2) The Vietnam experience clearly demonstrated that, in an unstable area, the extent of financial accounting and the method of reimbursement should be decided early in the operation, preferably prior to deployment of forces.

(3) A joint Service field assistance team would have been of great value in Vietnam in lessening problems in accounting as well as in assisting in the area of contractor relations and contract administrations.

(4) The relationships and responsibilities of the Defense Supply Agency/Defense Fuel Supply Center and other Department of Defense (DOD) activities were not clearly defined as to their respective roles in contract administration for POL overseas in DOD Directive 4140.25, Management of Petroleum Products, January 6, 1965, and the implementing instructions thereto.

(5) Much of the joint Service participation in POL policy making was lost with the inactivation of the Directorate, Petroleum Logistics Policy, Office of the Secretary of Defense for Installations and Logistics, in 1966. A high-level Joint Petroleum Committee with representation from the Services, Defense Supply Agency, and Joint Chiefs of Staff would fill the void left by the inactivation of the Directorate in 1966 and would enhance overall POL logistics.

#### b. Recommendations

(PL-7) Planning for contingencies provide for one of the following methods of reimbursement for POL to avoid detailed accounting in a combat area, specifying either:

(a) POL be supplied by the Services responsible for interservice supply support for overseas areas on a nonreimbursable basis, or

(b) Reimbursement be provided by all Services on a factored basis with handling losses prorated similar to procedures established in June 1968 in Vietnam.

(PL-9) Directives be clarified to fix unambiguously on Defense Supply Agency/Defense Fuel Supply Center responsibility for and surveillance over the administration of Defense Supply Agency contracts for supply of bulk petroleum and for services related thereto.

(PL-10) Defense Supply Agency/Defense Fuel Supply Center, in coordination with the military departments, develop and maintain compatible procedures, regulations, forms, and other documents for the supply, storage, distribution, and accounting of POL products.

(PL-11) Defense Supply Agency/Defense Fuel Supply Center, in coordination with the military departments, develop a POL Field Assistance Program to provide assistance and advice to installations and activities of the military services, other Department of Defense components, and contractor activities. The objectives of the Field Assistance Program are to evaluate management functions performed in the field; determine the adequacy of Defense Fuel Supply Center sponsored procedures and regulations; identify problem areas and recommend preventive measures; identify actions necessary to improve effectiveness and economy; and provide military services and other Department of Defense components information and advice concerning problems requiring their attention for corrective actions. A proposed revision of Directive 4140.25 is in Appendix H of the POL Monograph, and when approved will implement recommendations (PL-9), (PL-10), and (PL-11).

<sup>1</sup> Commander in Chief, Pacific, Message, subject: Monthly Bulk Fuels Report (U), dated each month (CONFIDENTIAL).

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(PL-12) The Joint Chiefs of Staff establish a Joint Petroleum Committee to:

- (a) Advise and assist the Joint Chiefs of Staff in establishing priorities and allocations of petroleum products when required during periods of international tension and war.
- (b) Resolve problems when the Services and the Defense Supply Agency cannot agree.
- (c) Ensure the development and proper functioning of a Field Assistance Program.
- (d) Monitor the responsibility assigned to the Defense Supply Agency in coordination with the military departments to standardize procedures, regulations, forms, and other documents for the supply, storage, distribution, transfer, and accounting for POL products.
- (e) Review plans for the supply of POL in time of war.
- (f) Recommend petroleum policies. A proposed charter for the Joint Petroleum Committee is in Appendix I of the POL Monograph.

(PL-13) As a matter of priority, the Defense Fuel Supply Center, in coordination with the military departments, establish a field assistance team to visit Vietnam, evaluate POL contract administration, and make specific recommendations to the Services and the Defense Supply Agency for improvement.

(PL-14) The Defense Supply Agency/Defense Fuel Supply Center, in coordination with the military departments and with the guidance of the Joint Petroleum Committee, if established, give high priority to the rewriting of existing instructions and directives. The purpose should be simplification and elimination of ambiguities regarding functions, responsibilities, duties, and relationships.

#### 4. SPECIAL SUPPORT PROBLEMS

##### a. Lessons Learned

(1) Procurement quality assurance was very difficult to achieve in Vietnam as a result of extensive use of nonmilitary-controlled commercial facilities, lack of sufficiently qualified inspectors, and the lack of direction and control over procurement quality assurance personnel. The extensive use of commercial facilities created the need for inspectors at many areas scattered throughout Vietnam. The Navy, which had been assigned procurement quality assurance responsibilities in the Vietnam area, tried to obtain civilian volunteers for the job, but insufficient numbers were available. There was also an insufficient number of trained military personnel to fulfill the requirement. Those personnel who were obtained were responsible directly to the Navy Fuel Supply Office in Washington rather than being assigned to a command in the area.

(2) In some areas, notably Vietnam and Thailand, the assignment of procurement quality assurance has not always been consistent with the assignment of other logistics support responsibilities. In Thailand, for example, where the Air Force was primary consumer, the Army was charged with partial support of POL while the Navy was responsible for procurement quality assurance. To the extent practicable, the assignment of responsibilities should not be fragmented.

(3) The situation with regard to the world tanker fleet is steadily changing. Commercial tankers are being built with larger capacities each year, and the smaller tankers that are capable of servicing most military ports are getting older. Most military ports do not have sufficient storage or water depth to accommodate the newer tankers. POL demands at most of these ports are not great. The requirement for a fleet of handy-size tankers to fill the void left by the new tanker trend has been recognized and should be expedited.

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(4) Operations in many parts of Vietnam were directly dependent on shallow-draft T-1's and Navy AOGs for coastal movement of POL from main to remote storage areas. All military vessels of this type are quite old and should be replaced with a new design of comparable capabilities to maintain the capability for coastal operations.

#### b. Recommendations

(PL-15) Services maintain a nucleus of qualified junior officers and senior non-commissioned officers with billets to maintain POL procurement inspection proficiency for responding to shifting workloads and for assignment in undesirable or hostile areas.

(PL-16) Joint Directive NSAM 4220.1, AR 700-9100.5, AFR 67-142C, MCO 10340.16A, and NAVSUP PUB 5005 include, in the inspection assignment policy section, a statement indicating that to the extent practicable Procurement Quality Assurance inspection should be assigned so as to coincide with other logistic responsibilities.

(PL-17) The handy-size tanker program be implemented as soon as practicable.

(PL-18) A program to replace the old T-1 tankers and AOGs be implemented.

#### 5. REVIEW OF REPORT OF THE PETROLEUM MANAGEMENT STUDY GROUP FOR THE DOD, October 1968

a. Recommendations of Colglazier Report. The Secretary of Defense's memorandum of 8 May 1968, Management of Petroleum, requested a position by the Joint Logistics Review Board on four recommendations from the Report of the Petroleum Management Study Group for the DOD dated October 1968 (Colglazier Report) which had received general nonconcurrency. Other recommendations in the October 1968 report were either approved by the Secretary of Defense, passed to the military departments or the Defense Supply Agency as advisory, or rejected. The four recommendations referred to the Joint Logistics Review Board were:

(1) Recommendation 1. "That a single DOD agency (Defense Fuel Supply Center) be given full and sole authority for source selection and placing orders on contracts, with power of delegation as desirable, including the issuance of such distribution plans as necessary.

(2) Recommendation 2. "That if any other form of management short of fully integrated management (Option 4) is selected, a 'management fund' be authorized for the Defense Supply Agency to finance funded contracts, to fund orders placed by that agency and to fund first destination transportation for orders placed. That if Option 4 is selected, a Defense Fuels Stock Fund Division for bulk fuels be established with 'projects' corresponding to the present departmental stock fund division or 'material categories' for bulk fuels, to finance from time of order to issue to end-use or authorized customer.

(3) Recommendation 3. "That if some option other than Option 3 or 4 is adopted, it should include as a minimum the elimination of the duplicating functions of the five Air Force Aerospace Fuels Field Offices (AFAFFOs), consolidating and jointly staffing, under the DFSC, the remaining field offices as needed.

(4) Recommendation 4. "That for the most efficient and effective management of petroleum in DOD the Optimum Management Option presented in Section III E of Chapter 7 (Volume I)<sup>2</sup> be adopted."<sup>3</sup>

<sup>2</sup> Report of the Petroleum Management Study Group for the DOD, October 1968.

<sup>3</sup> Secretary of Defense, Memorandum, subject: Management of Petroleum, 8 May 1969.

b. JLRB Recommendations on:

(1) Recommendation 1 of Colglazier Report

(PL-19) A single DOD agency (Defense Supply Agency/Defense Fuel Supply Center) be given full and sole authority for source selection and placing orders for large shipments of petroleum products to be moved by ocean-going tankers, except tankers operating on the Great Lakes, to meet the requirements of the military departments. The authority may be delegated by the Defense Supply Agency.

(PL-20) Except where ocean-going tanker shipments are involved, military departments retain the authority for source selection and ordering, and for the delegation of such authority as appropriate.

(PL-21) There be no changes in the authority of a military department to issue its own distribution plans.

(2) Recommendation 2 of Colglazier Report

(PL-22) Neither the management fund nor the DSA fuel stock fund be established.

(PL-23) No further consideration be given to Option 4.

(PL-24) In the case of bulk petroleum requiring shipment by ocean tanker, the Air Force place orders through the Defense Fuel Supply Center.

(3) Recommendation 3 of Colglazier Report

(PL-25) The five Air Force Fuels Field Offices should remain under operational control of the Air Force and continue to perform duties in the geographical areas as now assigned.

(PL-26) The consolidation of the Air Force Fuels Field Offices and their assignment to the Defense Fuel Supply Center is not recommended.

(PL-27) Some duplication is considered necessary to ensure proper and timely notification of all concerned with tanker lifting arrangements, and it should properly be a specifically assigned task to the Defense Fuel Supply Center to notify everyone concerned.

(4) Recommendation 4 of Colglazier Report. This recommendation is titled the Optimum Management Option. The JLRB position was set forth in Table 9, Chapter VII of the POL Monograph.

c. Certain of the JLRB recommendations in this monograph specifically support the JLRB position on the Optimum Management Option (Table 9). Other improvements will result from the remaining JLRB recommendations. The most important of these additional improvements will result from:

(1) Clarification and extension of responsibilities of DSA/DFSC with particular attention to Contract Administration in overseas areas.

(2) Standardization of procedures, regulations, forms, and documents related to POL.

(3) Establishment of a Field Assistance Program under the DSA/DFSC.

(4) Establishment by the Joint Chiefs of Staff of a Joint Petroleum Committee. (The proposed revision to DOD Directive 4140.25, Management of Petroleum Products, in Appendix H of the POL Monograph will implement these improvements.)

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b. JLRB Recommendations on:

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(3) Recommendation 3 of Colglazier Report

(PL-25) The five Air Force Fuels Field Offices should remain under operational control of the Air Force and continue to perform duties in the geographical areas as now assigned.

(PL-26) The consolidation of the Air Force Fuels Field Offices and their assignment to the Defense Fuel Supply Center is not recommended.

(PL-27) Some duplication is considered necessary to ensure proper and timely notification of all concerned with tanker lifting arrangements, and it should properly be a specifically assigned task to the Defense Fuel Supply Center to notify everyone concerned.

(4) Recommendation 4 of Colglazier Report. This recommendation is titled the Optimum Management Option. The JLRB position was set forth in Table 9, Chapter VII of the POL Monograph.

c. Certain of the JLRB recommendations in this monograph specifically support the JLRB position on the Optimum Management Option (Table 9). Other improvements will result from the remaining JLRB recommendations. The most important of these additional improvements will result from:

(1) Clarification and extension of responsibilities of DSA/DFSC with particular attention to Contract Administration in overseas areas.

(2) Standardization of procedures, regulations, forms, and documents related to POL.

(3) Establishment of a Field Assistance Program under the DSA/DFSC.

(4) Establishment by the Joint Chiefs of Staff of a Joint Petroleum Committee. (The proposed revision to DOD Directive 4140.25, Management of Petroleum Products, in Appendix H of the POL Monograph will implement these improvements.)

## **16. PROCUREMENT AND PRODUCTION SUMMARY**



## PROCUREMENT AND PRODUCTION SUMMARY

1. **OVERVIEW.** The procurement and production contribution to the logistic support of the Services during the Vietnam conflict occurred under unusual circumstances that impacted significantly on its performance. While the value of contracts awarded annually surged from \$28 billion in FY 65 to \$45 billion in FY 67 (peak year), the procurement organizational structures of the Services were undergoing major changes, new constraints were being imposed, and military purchases had to compete with civilian orders for available production capacity. A final but very significant aspect of the environmental picture was the continuous fluctuation of requirements and its effect on the procurement and production function.

a. The surge of defense orders required to support the buildup in Vietnam found these orders superimposed on the highest rate of industrial activity ever achieved by our industrial base. The use of priority ratings became vital in achieving delivery of needed military end items in situations such as competing military and civilian orders for a specialized type of product or material; conflicting priority orders on suppliers' schedules; and inadequate facilities to produce the required product or material. Every facet of the National Priorities and Defense Materials System (which was limited to defense and defense-related programs) was needed and used; but, despite its obvious availability, many people responsible for its functioning, in both Government and industry, were unfamiliar with its provisions and unskilled in its application. In addition, the environment within industry at the beginning of the Southeast Asia buildup was not favorable for the timely production of urgently needed military supplies. The lack of a declared emergency equalized the urgency of defense programs and requirements for the national economy.

b. The support of the Vietnam conflict placed tremendous demands on the procurement function of the Services and the Defense Supply Agency, and required the rapid placement of a greatly increased number of contracts within a business-as-usual atmosphere. Because of this greatly accelerated program, concern developed that recent progress made in expanding competition in procurements might diminish. Rigid administrative controls were established which required advanced high-level approval of significant sole source procurements. As a result, the initial phase of the expansion of the procurement program for Southeast Asia, with its need for timely contract placement, was characterized by a tightening rather than a relaxing of precontract controls. In addition, procurement activities were continually confronted with requirements turbulence resulting from program and funding changes that necessitated changes in solicitations, resolicitations, and the execution of several contracts where one would have sufficed.

c. During the Vietnam era each military department and the Defense Supply Agency underwent major reorganizations that were related to procurement. Department of Defense Project 60, which assigned responsibility for contract administration primarily to the Defense Contract Administration Services, was implemented in 1965. At this time there was a phasing out of the Army Materiel Command (AMC) procurement district organizations and a rapid assimilation of a greatly increased procuring contracting officer function by AMC commodity commands. In 1966 three major subordinate commands were established in AMC commodity commands. The Navy disestablished its technical bureaus and established the Naval Material Command with six subordinate systems commands. During the August 1965 to June 1967 period, the Air Force deactivated four Air Materiel Areas and transferred their responsibilities to the remaining five. In May 1967 the Marine Corps consolidated the east and west coast procurement of secondary items at the Marine Corps Supply Activity, Philadelphia, Pennsylvania. In July 1965

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the Defense Supply Agency consolidated three of its supply centers into the Defense Personnel Support Center.

d. The Services rely on Defense Contract Administration Services (DCAS) for the administration of the majority of their contracts. The pre-award survey is the best means for the procuring contracting officer to ensure that a contractor can fulfill all requirements of a solicitation. However, Government delay is frequently the cause of contractors becoming delinquent and can cause additional expense and late delivery of the end items. Quality assurance is an area of constant study and evaluation. For the program to operate effectively, there must be adequate feedback data reporting defective materiel from the users to the buying activities and Defense Contract Administration Services. Prior to 1968, each Service was using its own format in reporting deficient items, which resulted in an inadequate number of reports reaching the cognizant Defense Contract Administration Services Office. To remedy this situation, the Department of Defense issued Instruction 7700.12, Reporting Unsatisfactory Newly Procured and Contractor Maintained Materiel, 27 November 1968, which standardized the reporting procedures. The Services should intensify their efforts to comply with this instruction.

e. The preceding paragraphs provide a brief description of the conditions affecting the procurement and production function during the Vietnam era and its response to these conditions. Three primary topic areas, priorities, contract placement, and contract administration, were selected for review. A summary of the major issues and lessons learned and the recommendations developed through this review are presented in the remaining paragraphs of this chapter.

## 2. PRIORITY SYSTEMS

### a. Lessons Learned

(1) A simplified National Priorities and Defense Materials System was in being at the start of the Southeast Asia buildup. This system, a version of the Controlled Materials Plan in operation during the Korean conflict, was limited to defense and defense-related programs. Since the system had been in effect continuously since 1 July 1953, the United States was better equipped to meet its military commitment in Southeast Asia than in previous conflicts.

(2) The surge of defense orders in 1965-69 required to support the buildup in Southeast Asia found the National Priorities and Defense Materials System suddenly needed. Despite its obvious availability, many people responsible for its functioning in both Government and industry were unfamiliar with its provisions and unskilled in its application. The National Priorities and Defense Materials System regulations, orders, and procedures now in effect are complex and are not generally known or understood.

(3) There is a need to ensure that priorities established by DX/DO ratings are fully implemented, complied with, and understood by those individuals involved in both Government and industry. For example, spot checks might be performed on a routine basis by the Business Defense Services Administration through the Department of Commerce field offices and by the Department of Defense contract administration and inspection agencies.

### b. Recommendations

(PP-1) The Office of the Secretary of Defense endorse the continuation of the National Priorities and Defense Materials System as an administrative means of promptly mobilizing the industrial resources of the country for limited or general war.

(PP-2) The Office of the Secretary of Defense and the Business and Defense Services Administration:

(a) Provide for an education effort on priorities and allocations within the Department of Defense and industry.

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(b) Rewrite the basic Business Defense Services Administration regulations and Department of Defense Instruction 4410.1 (Priorities and Allocations Manual) in laymen's terms to simplify and clarify procedures and to promote greater understanding of the National Priorities and Defense Materials System within Government and industry.

### 3. CONTRACT PLACEMENT

#### a. Lessons Learned

(1) During the first two fiscal years of the Vietnam buildup, procurement activity, measured by dollars of contract awards, increased approximately 61 percent. The strength of the existing Department of Defense procurement organization was demonstrated by the fact that it accomplished the increased workload, as a rule, satisfactorily. The Armed Services Procurement Regulation provided sufficient flexibility to carry out the procurement mission. However, the Armed Services Procurement Regulation and its implementations by the Services and the Defense Supply Agency are voluminous and unwieldy, particularly the method and frequency of changes to the document. A need for training of personnel in both Government and industry prior to implementation of changes to the Armed Services Procurement Regulation was evident.

(2) The review and approval process imposed on contract placement by the Armed Services Procurement Regulation and other Department of Defense regulations consumes procurement administrative lead time and is administratively costly. In this regard, the use of class determinations and findings would reduce procurement administrative lead times and administrative costs. Further, a need exists to raise the dollar limitations under which simplified procurement procedures may be used. The impact of requirements and funding turbulence on procurement during the 1965-69 time frame was particularly evident. This turbulence resulted in the cancellation of solicitations, wasted procurement effort, and the use of less desirable contracting methods such as letter contracts. Procurement planning was invalidated by extended delays.

#### b. Recommendations

(PP-3) The Assistant Secretary of Defense (Installations and Logistics) simplify the structure of the Armed Services Procurement Regulation and reduce the frequency of changes thereto. For example, separate editions of the Armed Services Procurement Regulation could be published for small purchase procedures, supply contracts, research and development contracts, and construction contracts. Changes could be published semiannually, unless there is a more urgent need on some specific issue.

(PP-4) The Assistant Secretary of Defense (Installations and Logistics) sponsor uniform training programs for major Armed Services Procurement Regulation policy changes to be accomplished prior to their effective date. In determining the effective date of a major change, time for training commensurate with the complexity of the change should be considered.

(PP-5) The Assistant Secretary of Defense (Installations and Logistics) take action to increase the dollar limit of small purchases from \$2,500 to \$10,000.

(PP-6) The military departments take action to ensure that procurement planning in support of contingency operations emphasizes the use of class determinations and findings.

### 4. CONTRACT ADMINISTRATION

#### a. Lessons Learned

(1) The establishment of the depot quality audit process, in accordance with Department of Defense Instruction 4155.13, Quality Control and Reliability Management of Supply and Storage Depots, 27 November 1967, aided in the detection of nonconforming supplies being shipped into the depots and prevented them from being stored and subsequently passed on to users.

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(2) The Government's failure to fulfill its contractual obligations can adversely affect performance under the contract. In some instances, the Government did not deliver to the contractor Government-furnished property as specified in the contract; in other cases, faulty technical data were incorporated in the contract or unrealistic delivery dates were included in the contract.

(3) A more responsive contract reporting system is needed. For example, submittals of DD Forms 375, Production Status Reports, and DD Forms 250, Material Inspection and Receiving Reports, should be made promptly. Deficiencies in submitting DD Forms 375 by Defense Contract Administration Services prevented the buying activities from accomplishing corrective actions and prevented users from adjusting their plans to compensate for late deliveries. The delinquency in processing DD Forms 250 increased the administrative burden by causing follow-up action by the procuring activities and Inventory Control Points to determine contract delivery status. Military Standard Contract Administration Procedures (MILSCAP) is designed to correct the contract status reporting deficiencies and is scheduled for implementation during the 1970-72 period. Military Standard Contract Administration Procedures should standardize and expedite the flow of contract administration information between Contract Administration regions, Inventory Control Points, and contractors.

#### Recommendations

(PP-7) The Services implement procedures fixing responsibility for setting forth the Government's obligations and for direction or coordination of actions needed to fulfill the Government's obligations.

(PP-8) Upon receipt of the purchase request, procurement offices initiate in-house pre-award survey verifying that the Government can fulfill its obligations to be incorporated in the contract.

(PP-9) The administrative contracting officer intensify the administration of contracts to include and amplify those actions required by the Government as well as those of the contractor.

## **17. SUPPLY MANAGEMENT SUMMARY**

# SUPPLY MANAGEMENT SUMMARY

## 1. OVERVIEW

a. Military operations in Vietnam tested the capability of the Services' supply management organizations and procedures to respond to the demanding requirements of a large-scale contingency operation thousands of miles from the continental United States (CONUS). Although the adequacy of supply support in Vietnam is evidenced by the exceptionally high state of operational readiness of the Services, this support was not as efficient as it could have been. The congestion in ports and receiving areas, the difficulty experienced by supply personnel in locating, accounting for, and issuing supplies to customers during the buildup phase, and the development of excesses indicate that inefficiencies existed in all of the Services' supply systems.

b. The rapid buildup of the logistical base in Vietnam did not follow generally accepted logistic doctrine. The Secretary of Defense placed precise limitations on the number of U. S. forces that could be introduced into Vietnam within specific time frames. Within these limitations, tactical requirements dictated a high priority for the deployment of combat units without a proportionate buildup of the required logistical base. The COMUSMACV plans for the buildup of forces in Vietnam called for logistic base and supporting facilities to be assigned the lowest priority for construction. Ports were generally assigned a somewhat higher priority.

c. There were inordinate delays in the preparation of logistic facilities and in the establishment of adequate supply management capabilities. These factors, combined with the tremendous quantities of materiel that were shipped into Vietnam at a rate that was not in balance with the handling capabilities of the theater, created backlogs at the major logistic facilities, e. g., ports, depots, and in-transit storage areas. Supply assistance teams were dispatched from CONUS to assist in the receipt, storage, issue, and accounting for materiel throughout Vietnam. The consequences of the initial problems created by overloaded logistic systems, however, were of long duration and impacted adversely on the efficiency of supply management in Vietnam from 1965 through 1968.

d. Push procedures, necessary in the initial stages of a contingency operation, were used effectively as a means of providing initial supply in Vietnam; although, in some instances, the range of items supplied should have been decreased. Contingency plans generally call for 180 days of push shipments; however, in actual practice a pull system of requisitioning materiel should be initiated at the earliest possible date.

e. The use of intensively managed weapons systems techniques employing special supply and transportation procedures were used to good advantage. Some of these, such as for aircraft and missiles, represented normal Service policy, whereas others, like Red Ball and 999, were established to respond to urgent requirements in SE Asia for repair parts and other critical materiel essential to the support of combat operations.

f. The Department of Defense standard supply procedures and support systems were thoroughly tested for the first time during the Vietnam conflict. Standardization of data elements, codes, forms, and format facilitated the interchange of supply data within and among the Services. These systems provided a standard reporting system for evaluating the effectiveness of selected supply and transportation functions. Experience in Vietnam, however, demonstrated the adverse impact of changes or revisions to the military standard systems during combat involvement.

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g. The experience in support of supply operations in Vietnam indicates a great potential for more efficient CONUS management of inventories by extending to overseas areas visibility on selected items of materiel. Visibility over the more important and costly segments of inventories, including reparable, can provide the necessary data for management to redistribute assets and program for the return and repair of materiel—thereby reducing requirements for new procurement.

h. The Services' inventory and stock control systems in SE Asia have many similarities. Each has specifically identified organizational elements for performing inventory management, determining stockage criteria and levels, providing for the receipt, storage, and shipment of materiel to customers, and related data processing and reporting. There is, however, a marked difference in the extent to which the inventory and stock control functions have been automated and in the degree of standardization of supply systems, procedures, and programs. Service policies also differ in their criteria for stockage and requirements for asset reporting to the CONUS inventory managers from overseas supply activities.

i. The conduct of supply operations in Vietnam demonstrated that stockage criteria that are too liberal, which creates an unnecessary range of stocked items, can impact adversely on supply management. Some of the indications of this in Vietnam were inaccurate inventories, increased requirements for stockage facilities, a high turbulence in demand-based stockage lists, increased use of high-priority requisitions, excessive inventory investment, excesses, increased requirements for automatic data processing equipment, and other resources for supply management activities.

j. Primary supply management emphasis overseas should be directed to stockage of those items of materiel that have a relatively high degree of sustained demand and contribute most to the maintenance of equipment in a high state of materiel readiness. Where practicable, responsive supply and transportation may be used to good advantage in lieu of stockage of infrequently demanded, high-dollar, or selected reparable items of materiel.

k. The expanded use of air transportation, containerization, automatic data processing systems, and advanced communications capabilities provide the means for minimizing requirements for logistic resources in overseas areas and can contribute to the effectiveness and efficiency of overseas supply operations.

l. As military operations in Vietnam began to intensify, it became increasingly difficult for Service personnel managers to meet the requirements for qualified and experienced supply personnel. Because the CONUS wholesale supply system had been largely civilianized, resources of military personnel with wholesale depot operations and inventory control experience were reduced drastically and, in some cases, quickly exhausted. The use of Reserve components would have made more logistic skills available and allowed sufficient time to expand and accelerate the CONUS training base.

m. The preceding paragraphs summarize the most important aspects of supply management support of the Vietnam conflict. The major lessons learned and the most significant 17 of the 39 recommendations developed within the monograph are addressed in the balance of this chapter.

## 2. DEPARTMENT OF DEFENSE PROCEDURES AND SUPPORTING SYSTEMS

### a. Lessons Learned

(1) The performance of the Military Standard Requisition and Issue Procedures (MILSTRIP) system, used for the first time in support of combat operations in Vietnam, was generally satisfactory. Because of the frequent changes and additions to the MILSTRIP procedures, however, supply customers had problems in using the system. In some instances, the changes to MILSTRIP appeared to be oriented to solving wholesale management problems without regard to the impact on the user. The cumulative effects of MILSTRIP changes created turbulence throughout the supply distribution system and were responsible for many of the

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problems encountered by supply managers in Vietnam in achieving desired standards of effectiveness and efficiency in supply operations.

(2) Changes in catalog management data, e. g., stock numbers, unit of issue, and item migration among managers, created problems in supply operations and for the requisitioner in Vietnam. These problems were particularly acute during the buildup phase and often delayed action on high-priority requisitions.

(3) The Uniform Materiel Movement and Issue Priority System (UMMIPS) time standards were based on goals and desires that did not prove to be realistically obtainable. Most requisitioners in Vietnam did not receive materiel within the UMMIPS time standards regardless of the issue and transportation priority. This led to a lack of confidence in the supply systems, abuses in assignment of supply priorities, and submissions of duplicate requisitions for materiel. It also resulted in the necessity to use considerably longer order and ship times in computing requisitioning objectives to maintain required levels of supplies overseas.

(4) UMMIPS allows consolidation of urgency of need designator (UND) C shipments (priorities 11 through 15) with those in UND D (16 through 20) providing the time frames of the former are met. Factually, UMMIPS surface time frames are seldom met, especially for overseas shipments. Inasmuch as materiel in both UNDs move by surface, and often in the same shipment and/or transportation unit, the necessity for continuing the 20 issue and 4 transportation priorities appears unnecessary.

(5) With additional automatic data processing equipment capacity, the MILSTRIP-formatted part-numbered requisitions could be routed by the Defense Automatic Addressing System (DAAS). Automatic processing of part-numbered requisitions would reduce the burden of the requisitioner, improve supply response, and reduce the number of requisitions being mailed and electrically transmitted as narrative format messages.

#### b. Recommendations

(SM-1) The Director, Defense Supply Agency, as the MILSTRIP administrator, keep changes in the Military Standard Requisitions and Issue Procedures to a minimum, particularly during contingency operations, to avoid confusion and misapplication at the requisitioner level.

(SM-11) The Office of the Secretary of Defense develop and promulgate policies designed to:

(a) Hold in abeyance or strictly limit the migration of items among materiel managers during periods of hostilities.

(b) Limit catalog data element changes, particularly to those that have an impact on the requisitioner, e. g., unit of issues, during contingency operations.

(c) Restrict Federal stock number and other data element changes to a quarterly interval unless there are cogent reasons for an immediate change to minimize impact on the retail system.

(SM-5) The Office of the Secretary of Defense, using Military Standard Evaluation Procedures as the vehicle, develop and adopt realistically attainable time standards to cover each significant element of the communications, supply, and transportation spectrum from the time of requisition origin until the delivery of materiel to the ultimate consignee.

(SM-7) The Office of the Secretary of Defense, with Service participation, prescribe use of urgency of need category C instead of D for replenishment requisitioning purposes and eliminate the latter category. This will, in turn, reduce the number of priority designators from 20 to 15, simplify selection and application of correct requisitioning priorities, and reduce the number of priority groups and transportation priorities from four to three.



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(SM-14) The Office of the Secretary of Defense take necessary action to enhance the capability of the Defense Automatic Addressing System to process and route electrically transmitted Military Standard Requisitioning and Issue Procedures part-numbered requisitions.

### 3. CONUS INVENTORY CONTROL POINTS

#### a. Lesson Learned

(1) Push supply procedures were used effectively as a means of providing initial supply support to forces in Vietnam. Push packages were provided to some extent by all Services to meet initial requirements; however, the Navy and the Marine Corps employed a modified version in that requirements were determined by organization or units in SE Asia rather than by CONUS activities. The major problems encountered were in obtaining timely force structure information, computing requirements for a wide range of end items of materiel, and delays, in some instances, in establishing a normal pull requisitioning system.

#### b. Recommendation

(SM-17) The procedures and techniques developed by the Services for providing push packages, or modified versions thereof, be made a part of established policies and procedures and provide that computation of requirements be equipment oriented rather than force oriented, the supplies be containerized and prebinned to the extent practicable, and the range be limited to high-demand items and essential items for selected critical systems.

### 4. ITEM VISIBILITY

#### a. Lesson Learned

(1) The lack of item visibility below the wholesale level made it difficult for inventory managers to distinguish between issues for purposes of filling retail stock levels and issues for immediate use. Item visibility is required on a selective basis below the CONUS wholesale level in order to manage efficiently inventories involving high-dollar value sales. All active depot-level reparable items should be visible regardless of condition or location, to provide a tool for the use of inventory managers in expediting their return and repair. Ownership at the item-manager level is not essential to visibility and control. However, data at all levels must be consistent and procedures for reaching decisions must be clear and authoritative.

#### b. Recommendation

(SM-19) For the long range, the Services and the Defense Supply Agency plan to develop the capability to attain worldwide visibility of high-dollar value items for which this depth of visibility may be required, recognizing that the range and depth of visibility should be variable as selected by the Service concerned.

### 5. SERVICE STOCKAGE IN CONUS OF INTEGRATED ITEMS

#### a. Lesson Learned

(1) The review of Service stockage of integrated materiel in CONUS and the effectiveness of support provided reveals no basis for recommending a change to the present use of specialized support depots (SSD) and direct supply support points (DSSP) operated by the Defense Supply Agency and the Navy. Current Army tests of direct shipments to using units may establish a requirement for similar support for the Army.

### 6. MANAGEMENT AND CONTROL OF MATERIEL IN OVERSEAS AREAS

#### a. Lessons Learned

(1) The Vietnam conflict demonstrated the long-range problems that can be created by delays in providing a timely and adequate in-country logistic support organization.

Early in the buildup of forces in Vietnam, quantities of materiel were introduced in-country that, in many instances, were excessive in relation to what was required in that time frame. This excess of materiel surpassed the capabilities of the limited logistic facilities to properly receive, store, issue, and maintain materiel. During the early stages of a contingency, when facilities and personnel are at best marginal, stringent control should be exercised over materiel shipped into the area of operations. As the capacity to handle materiel and the logistical data base are improved, the criteria for requisitioning and stockage can be relaxed if warranted by other logistic considerations.

(2) The majority of general and medical supplies and repair parts required by forces in an overseas area can be satisfied by a supply system based on stocking in depth relatively few items in-theater and supplying low-frequency demand items by the use of responsive transportation procedures. Service maintenance policies have a decided impact on the range and depth of in-theater stockage. Reorientation of maintenance toward a modular replacement concept would substantially reduce the requirements for stockage of a wide range of repair parts in forward areas.

(3) A reduction in the range and quantities of items shipped overseas that are nonessential to a particular contingency operation, e.g., paints, office furniture, and certain paper products, can be made without adverse effects. Such a reduction would contribute to improving the overall effectiveness and efficiency of supply support operations.

(4) Substantial reductions in the range and depth of maintenance-related supplies stocked by forces deployed ashore in overseas areas could be achieved by all of the Services if increased dependence is placed on airlift for the movement of high-dollar, reparable, and infrequently demanded items of materiel. This is predicated on maintaining adequate stocks of a minimum range of items that demonstrate a sustained high frequency of demand and with bulk replenishment, normally by surface transportation.

(5) Special supply and transportation procedures, such as 999, Red Ball, and Tiger Tom, using allocated or predictable airlift between the continental United States and overseas, proved effective in maintaining a very high state of materiel readiness for all of the Services in Vietnam.

(6) All Services should place greater reliance on air transportation in lieu of overseas stockage, particularly in response to the requests for nondemand supported, insurance, and mission-essential items.

(7) During the early phase of contingency operations, storage facilities will compete with many other construction requirements that often have a higher priority. Consequently, the Services need to develop methods of creating minimum-essential storage facilities for use during initial buildup periods of contingency operations that will minimize competition with the reliance on more conventional and time-consuming construction methods and procedures.

(8) Shortages of operational materials handling equipment during the early buildup period in Vietnam significantly impaired the ability of Service supply personnel to process and maintain controls of materiel. Supply and maintenance support of materials handling equipment would have been facilitated by standardization among the Services to the maximum extent possible and by reduction of the number of makes and models employed.

#### b. Recommendations

(SM-21) All Services reduce the stockage of demand supported consumable items of materiel, including repair parts, in forward operating locations to a range of items in accordance with the following:

(a) Each Service should establish stringent targets of a specific number of frequencies of demand for an item to qualify for initial stockage and retention. The targets will vary by Service, activity, type of materiel, and combat environment.

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(b) During the early stages of a contingency, when facilities and personnel are at best marginal, the criteria for stockage should be particularly stringent and could then be relaxed to the extent that economy and capacity to handle materiel and data warrant.

(c) Special stockage criteria will be required for special categories of materiel, such as, shelf-life items, high-value items, seasonal items, planned program items, and items with special storage requirements.

(d) Initial stockage of items newly introduced into the Services' supply systems should be added to the overseas supply point's stock list only if their anticipated usage meets the criterion for initial stockage as specified above.

(e) Items not meeting the prescribed retention criterion will be reported promptly to the applicable inventory manager in accordance with Service procedures.

(SM-22) The Services establish policies and procedures to limit the range and quantities of nonessential housekeeping and administrative materiel (such as paints, furniture, and certain paper products) authorized to be requisitioned by units in overseas areas to the minimum required for essential administration and troop support. Special justification should be required for unauthorized items. Service procedures could be in the form of catalogues tailored for a specific overseas area(s), allowance lists related to assigned logistic support missions, or the use of item identifiers in Service master item data files.

(SM-25) Army plans provide that when a contingency operation appears imminent an experienced logistic commander with rank appropriate to the anticipated scope of operations will be designated. He should be provided a nucleus staff and both should be located with the headquarters of the prospective operation or as near as possible.

(SM-27) The Office of the Secretary of Defense revise the Uniform Materiel Movement and Issue Priority System (UMMIPS) to extend the criteria for air transportation to permit the Services, in accordance with criteria that they establish, to code for air transportation those requisitions for selected items of Class VIII medical supplies and Class IX repair parts not normally stocked overseas. Such coding should be permitted on a routine basis without being subject to challenge except for apparent excess quantities.

(SM-28) All Services restrict the stockage of nondemand-supported, insurance, and mission-essential items of materiel in forward operating locations with reliance on air transportation to respond to overseas requirements for these types of materiel.

(SM-29) The Services, with due regard for the total costs involved, place increased dependence on air transportation for the movement of infrequently demanded items of materiel in addition to considering air as the normal means of transporting selected commodities such as high-dollar and reparable items of materiel.

(SM-30) Increased dependence on air transportation for the movement of materiel be accompanied by concurrent reductions in the requirements for logistic resources in overseas areas.

(SM-32) The Services develop methods of establishing initial-essential supply storage facilities capable of being erected and outfitted in minimum time without reliance on standard construction programs. The Army's Containerized Depot--Project YZJ, the Navy's Advanced Base Functional Components, the Marine Corps' Expeditionary Airfield, and the Air Force's Project Coronet Bare concept suggest methods that should be exploited and developed. A possible means of providing initial minimum-essential supply storage facilities include prepackaged mobile depots, vans, binned containers, semipermanent quick-erect structures, landing matting, portable reefer units, floating storage, and rapid soil stabilization techniques. The Services should include such capabilities in planning for contingencies.

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(SM-33) The Services specifically provide for selected materials handling equipment and supporting repair parts in planning for contingencies. This equipment should include short-mast and electric-powered forklifts and the 6,000-lb., 10,000-lb., and 15,000-lb. capacity rough-terrain forklifts.

(SM-34) The Joint Logistic Commanders recommend a joint program to standardize among the Services and to reduce, to the maximum extent practicable, the number of makes and models of construction and materials handling equipment as well as other jointly used items of major commercial equipment. In the development of this program the substantial progress achieved in the Mobile Electric Power Project should be noted. Two complementary courses of actions should be considered:

(a) Increase use of multiyear contracts; authorize limited-bidder competition; and expand criteria for the granting of Determinations and Findings for sole source procurements.

(b) Commonality of equipment within designated geographical areas.

#### 7. LOGISTICS PERSONNEL FOR SUPPLY OPERATIONS

##### a. Lesson Learned

(1) The nonparticipation of Reserve forces in support of operations in Vietnam impacted primarily on the Army, which experienced by far the greatest expansion in its force structure. The Army had to take extraordinary measures to expand its CONUS training base and to draw on other worldwide Army activities to furnish adequate numbers of qualified personnel to support its vast logistic operations in Vietnam.

##### b. Recommendation

(SM-37) The Services ensure that career development programs and the associated CONUS training base are aligned to meet worldwide requirements, including the support of contingency plans, and provide a sustaining base for military skills required to support key officer, warrant officer, and enlisted personnel needed in overseas supply support activities.

**18. TRANSPORTATION AND MOVEMENT CONTROL  
SUMMARY**

# TRANSPORTATION AND MOVEMENT CONTROL SUMMARY

## 1. OVERVIEW

a. Although the war in Vietnam was limited in scope, it produced demands for transportation that far exceeded known requirements. U.S. combat power was projected from the United States to an area that was nearly halfway around the earth and that lacked most of the infrastructure found in modern, industrialized nations. The port facilities were inadequate; there were few good roads; there were almost no usable railroads; and airfields capable of handling jets or large transport aircraft were scarce. During the buildup there were inadequate mobility system support resources—both materials handling equipment and military personnel—to load and unload ships and aircraft and to process and manage the flow of cargo. Nonetheless, logistic support of U.S. military forces in Vietnam resulted in the movement of almost 18 million short tons of supplies, excluding bulk petroleum, and 2.2 million men from the United States to Vietnam during the years 1965 through 1969. This timely movement of men and material over a 10,000-mile pipeline to SE Asia thoroughly tested the capability and responsiveness of the transportation agencies of the Department of Defense.

b. The movement of large quantities of men and material was not accomplished without difficulties. During the initial period of the buildup in Vietnam, the Military Sea Transportation Service (MSTS) nucleus fleet did not have sufficient capability to support the intertheater requirement for movement of helicopters and light aircraft and of Army lighterage and other out-sized cargo, and, as in the Korean buildup, a shortage of deep-draft cargo ships developed. To meet the transportation requirements throughout the period, escort carriers and general cargo ships were reactivated, amphibious force ships were used, both U.S. and foreign flag merchant ships were chartered, and contracts were let for long-distance towing operations. Tank landing ships (LSTs) for operations over-the-beach and in minor ports were in such critically short supply during the first 3 years of the Vietnam buildup that old LSTs were reactivated from all available U.S. sources and were borrowed from other countries.

c. With the extremely long supply line from the continental United States (CONUS) to SE Asia, the time required for surface shipments caused an increase in airlift requirements that soon exceeded the airlift capability. The competition for movement of the most urgently needed supplies resulted in the proliferation of super-priorities that, in turn, required the establishment of challenge and control procedures to control the flow of cargo into the air transportation system at a level consistent with the available airlift. The airlift system remained saturated during the first 18 to 24 months of the Vietnam conflict. By early 1967, however, the Military Airlift Command (MAC) had received over 100 C-141's and was originating cargo for SE Asia from five coastal and two inland aerial ports of embarkation. The civil air carriers had procured new long-range jet aircraft that increased both their capability and flexibility and were extremely responsive to MAC requirements. Further, the expanded facilities in SE Asia had enabled the reception of the long-range intertheater military and commercial aircraft at facilities nearer the user and reduced significantly the in-country distribution problems.

d. Port congestion in Vietnam reached such a serious stage late in 1965 that a crash construction program was initiated. Additional terminal units were deployed and were augmented by contracting for commercial capability. The construction of inland airfields that could receive MAC aircraft directly from CONUS did much to relieve the port congestion and reduced significantly the requirement for in-country shipments. A serious shortage of materials handling equipment was experienced at both aerial and water ports. As the buildup progressed and terminal

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reception capacity increased, there was a shortfall of truck clearance capability that necessitated augmentation by commercial contract.

e. The preceding paragraphs summarize the more important aspects of transportation operations in support of the Vietnam conflict. The major lessons learned and the most important 14 of the 54 recommendations developed within the monograph are addressed in the balance of this chapter.

### 2. TRANSPORTATION PLANNING FOR VIETNAM

#### a. Lessons Learned

(1) Detailed contingency plans for the defense of mainland SE Asia recognized that transportation facilities within SE Asia were extremely limited, that port facilities were inadequate, and that logistics-over-the-shore operations would be required in many situations. Logistic appraisals confirmed and refined these deficiencies. Transportation planning for support of these contingency plans was based on the assumption that national emergency procedures would be implemented to obtain augmentation of airlift, sealift, and related mobility forces. Because these procedures were not implemented, however, it does not appear valid to assume that such procedures will necessarily be implemented in future contingencies.

(2) Although the Joint Chiefs of Staff procedures for the submission of movement requirements distinguished between those in support of routine requirements and those that would support a decision to execute a previously developed plan, these procedures did not provide for the development, support, and coordination of requirements in a rapidly changing situation involving incremental deployment decisions. Although transportation guidance was developed by the Joint Chiefs of Staff in 1965 to correct this situation, it has not been incorporated into existing procedures. The Vietnam conflict emphasizes the urgent need for updating such guidance.

#### b. Recommendations

(TR-2) Mobility planning guidance of the Joint Chiefs of Staff for contingencies short of general war provide for the alternative of augmenting the lift capabilities of the Military Airlift Command and the Military Sea Transportation Service by contractual means in the event that mobilization of reserve and commercial resources is not authorized.

(TR-1) The Joint Chiefs of Staff revise their procedures for the submission of movement requirements (Chapter I of SM-680-68) to incorporate specific provisions for revising such requirements during periods of heightened tension.

### 3. CONUS TRANSPORTATION RESOURCES

#### a. Lessons Learned

(1) The commercial transportation support provided by the air, highway, and railroad industries during the Vietnam era was consistently excellent. Early attempts to support the buildup primarily through the west coast ports and the shortage of available lift contributed to the congestion of the CONUS facilities; however, expansion of the use of the east and gulf coast ports to support Vietnam proved economical and contributed to the relief of this congestion.

(2) Support of the Vietnam conflict again proved the need for military ocean terminals with a capability to hold, consolidate, and divert cargo to meet changing requirements as well as providing a capability for on-the-job training for military personnel. This was particularly true with regard to ammunition that was shipped almost entirely through military terminals. Due to security, safety, and other special problems inherent in the handling of ammunition, it is essential that an adequate military ammunition port handling capability be retained. In addition, experience proved that it is more responsive and cost favorable to ship ammunition from both east and west coast ports.

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(3) As evidenced by the successful movement of ammunition to Vietnam by containers in January 1970, the military ocean terminals need to be capable of interfacing with the evolving intermodel transportation system. In order to keep these terminals apace with modern technology, an austere but updated capability to handle container ships is urgently required.

#### b. Recommendation

(TR-6) The Secretary of Defense support modernization programs for military ocean terminals (including ammunition terminals) in order to provide necessary facilities to accommodate containerized shipping.

### 4. INTER- AND INTRATHEATER SEALIFT

#### a. Lessons Learned

(1) Even though the Military Sea Transportation Service (MSTS) nucleus fleet consisted of only 89 ships in January 1965, and ships later activated from the National Defense Reserve Fleet were of World War II vintage, sealift still provided most of the inter- and intra-theater lift of cargo to Vietnam. The Vietnam era emphasizes the importance of a responsive sealift capability and brings into focus the inadequacies of DOD common-user sealift resources to readily move very heavy or outsized military end items and specialized cargoes, to operate in restricted waters, and to support the petroleum, oil, and lubricants (POL) requirement of land, sea, and air forces.

(2) The nonavailability of sufficient ships from the active U.S. merchant marine to augment the MSTS nucleus fleet required the activation of ships from the National Defense Reserve Fleet, as had been done during the Korean era. The unavailability of sufficient U.S. flag shipping required MSTS to charter significant numbers of foreign flag tankers and some foreign flag cargo ships to meet requirements.

(3) The Vietnam experience highlights the overage and obsolescence of the National Defense Reserve Fleet (NDRF). This rapidly dwindling asset will not be readily available to augment the nucleus fleet beyond 1978. Difficulties encountered by MSTS in obtaining the more modern subsidized ships during Vietnam necessitated reliance both on the non-subsidized operators and, particularly, on the owners of the so-called tramp ships who depend primarily on Government charters to remain in business. However, the increasing trend toward commercial and military use of containers means that there will be minimal peacetime business for the older break-bulk ships and that there is a good probability that these ships will be scrapped.

(4) Unless the MSTS fleet is modernized with sufficient numbers of an appropriate mix of ships, there will be no peacetime capability to move containers to areas of the world not served by commercial container systems, no capability to move containerized unit equipment to contingency areas for about the first 6 months of contingency operations, no shallow-draft capability, and insufficient capability to move military end items (helicopters, wheeled and tracked vehicles, and lighterage) and ammunition.

(5) In order for the merchant marine to be a responsive source of military sealift augmentation in future contingency operations, current Maritime Administration policy must be replaced by a firm national commitment to make modern ships available to the Department of Defense when required for military purposes and there must be positive provision for the determination, incorporation, and funding of national defense features in new construction merchant ships.

#### b. Recommendations

(TR-11) The Joint Chiefs of Staff determine the numbers of multipurpose ships, medium-sized container ships, barge-carrying ships, and handy-sized tankers which must be in the Military Sea Transportation Service fleet to provide peacetime sealift support to U.S. forces



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and to meet surge requirements for contingency operations until such time as additional shipping support can be mobilized and made operational.

(TR-10) The Secretary of Defense support necessary legislation to authorize long-term build and charter commitments so that the multipurpose ships and handy-sized tankers now in the Five Year Defense Program (FYDP) as the initial increment of the Military Sea Transportation Service fleet modernization program may be constructed by commercial interests and chartered to the Military Sea Transportation Service.

(TR-13) The Secretary of Defense seek to have the legislation stemming from the President's Merchant Marine Program include positive provision for ensuring the responsiveness of modern U.S. flag merchant ships, with appropriate national defense features, to meet military requirements under various conditions of emergency.

### 5. INTER- AND INTRATHEATER AIRLIFT AND AERIAL PORTS

#### a. Lessons Learned

(1) During the Vietnam era the Military Airlift Command (MAC) met the Services' airlift requirements in a very responsive manner even though there were problems at times in matching forecasts of airlift requirements with capabilities. MAC's military air fleet lacked the capability to handle the total amount of cargo that generated for this long air line of communication. Although the Civil Reserve Air Fleet (CRAF) was not activated, comparable commercial augmentation was obtained whenever necessary through normal contractual arrangements.

(2) The use of commercial augmentation into Vietnam during 1965 and 1966 was constrained because agreements with the South Vietnamese Government authorized only U.S. civilian air carriers to land at the Ton Son Nhut air terminal in Saigon. It took several months of high-level negotiation to obtain authority to land MAC commercial charter flights at other locations.

(3) The addition of the presently programmed C-5 aircraft to the DOD inventory will increase the potential military airlift capability to approximately three times that of the 1969 military airlift force. Adequate ground handling facilities to cope with the increased tonnages envisioned by the use of the C-5 must be provided, and the Services must revise their Logistics Support Systems to take maximum advantage of the increased capability.

#### b. Recommendations

(TR-16) In contingency situations in which the use of U.S. commercial augmentation airlift is anticipated, the Secretary of Defense initiate prompt action through the Department of State to obtain necessary overflight and air landing agreements with nations concerned.

(TR-19) The Services actively pursue and complete ongoing studies concerning the revision of Service logistic systems in order that logistic support is provided effectively and economically and is consistent with the advantages provided by the C-5 airlift capability.

### 6. INTRA-RVN TRANSPORTATION

#### a. Lessons Learned

(1) The nature of the Vietnam conflict and the lack of land lines of communications required new concepts of operations for some transportation modes and increased reliance on other modes far beyond that of previous conflicts. Initial deployment of forces and supplies soon overtaxed the limited reception and distribution systems. The lack of land lines of communications and deep-draft ports forced the distribution system to rely heavily on intracoastal sealift and in-country airlift until additional facilities could be constructed. Common-service short takeoff and landing aircraft and helicopters assigned to tactical units played a major role in supplying combat forces in remote and forward areas.

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(2) The shuttle force concept of providing C-130 airlift support in the Republic of Vietnam (RVN) from offshore bases proved extremely successful. It provided a surge capability that permitted the Common Service Airlift System (CSAS) to meet in-country airlift requirements in a timely and effective manner with a considerable savings in the requirement for personnel and facilities in-country.

(3) The Vietnam experience highlights that operations in undeveloped areas, or in areas where the established ports have been destroyed, will initially require the use of logistics-over-the-shore (LOTS) techniques. This type of operation will place heavy reliance on support equipment, and the overall operation will be significantly slower than operations at a fixed pier. Through the use of pre-positioned mobile piers, such as the DeLong or the prefabricated Reeves type, fixed-pier operations can be established or reestablished in a relatively short time provided sufficiently high priorities are assigned.

(4) Support of riverine forces in areas such as the Mekong Delta require extensive use of combined intracoastal and inland waterway service. The tank landing ship (LST), particularly the older, shallow-draft craft, proved to be a most valuable asset in these operations. In addition, the Army beach discharge lighter (BDL), LTC John U. D. Page, proved to be a most valuable asset in supporting intracoastal requirements within the Cam Ranh Bay logistics complex.

(5) The Vietnam experience also indicates that there will be a continuing need for a dedicated short takeoff and landing (STOL) aircraft which will be responsive to commanders to provide tactical mobility and other immediate airlift requirements in the forward areas. This aircraft should have a reasonable payload capacity and be small, rugged, and easy to maintain in austere field facilities. Additionally, there is a need for a heavy-lift helicopter to interface at aerial and water ports for the distribution of materiel to forward tactical areas and for the ship discharge of containers and heavy-lift cargoes under emergency conditions.

#### b. Recommendations

(TR-26) Based on the Vietnam experience, the Department of the Army review current doctrine with regard to logistics-over-the-shore (LOTS) operations and incorporate the planned use of mobile/prefabricated piers, when applicable, within the first 60 days of operations.

(TR-46) In establishing future requirements for shallow-draft vessels for logistical support, the Departments of the Army and the Navy include small tank landing ships and beach discharge lighters.

(TR-43) The Department of the Air Force support the development and procurement of transport type aircraft and short takeoff and landing capabilities as replacements for the C-7A/C-123 aircraft for future land contingency operations.

(TR-44) The Office of the Secretary of Defense support the programs of the Services to provide a heavy-lift helicopter capable of transporting cargo and containers from ship to shore and to isolated forward areas in future contingency operations.

### 7. MOVEMENT CONTROL OF CARGO, UNITS, AND PASSENGERS

#### a. Lessons Learned

(1) The Vietnam conflict demonstrated that cargo movement control organizations and procedures should be in existence prior to the start of a major buildup to provide the necessary link or interface between shippers, transportation operating agencies, and consignees in overseas areas. There were inadequate procedures to coordinate effectively inter- and intra-theater shipments with Vietnam receiving capability or to identify those materials that receive precedence in case of lift shortage or limited receiving capability. In addition, considerable non-Department of Defense (DOD) cargo was being moved to Vietnam without prior knowledge of any DOD movement control agency.

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(2) The lack of an adequate movement control system was a contributing factor to the confusion in the coordination between CONUS and overseas logistic support organizations, port congestion, shipping backlogs, and to a lack of proper coordination with the transportation system itself.

(3) Coordinated Pacific Command movement control organizations were established after commencement of the Vietnam buildup in order to limit the flow of material to a level commensurate with area reception capability, lift capabilities, and command requirements. This action came too late, however, as a great volume of material had already been transported to Vietnam. Movement control of all shipments was never achieved because no mechanism or procedures existed that would allow the Commander in Chief, Pacific, or the Commander, United States Military Assistance Command, Vietnam, to have knowledge (in gross terms) of the total tonnage, including non-DOD sponsored cargo, shipped into the country or the ability to balance the flow of cargo against the capability of the port and depot complex to properly receive and utilize it.

#### b. Recommendations

(TR-48) Each commander of a unified command review his organization for movement control and coordination and, where necessary, revise his organization to incorporate agencies and procedures similar to those in the Pacific Command to limit the flow of material to a level commensurate with throughput capability, lift capabilities, and command requirements. Coordination and control procedures and a nucleus staff for these agencies should be activated and maintained in peacetime.

(TR-49) The Joint Chiefs of Staff through the Office of the Secretary of Defense initiate procedures with the appropriate U. S. Government agencies to ensure that the commanders of unified commands will have gross knowledge of all programmed shipments into their areas of responsibility; and that control procedures be developed to encompass all such shipments within and external to the Defense Transportation System.

**APPENDIX A**  
**COMPENDIUM OF RECOMMENDATIONS**

## **1. ADVANCED BASE FACILITIES MAINTENANCE RECOMMENDATIONS**

## **ADVANCED BASE FACILITIES MAINTENANCE RECOMMENDATIONS**

(BM-1) Facilities maintenance requirements and adequate resources to fulfill such requirements be identified in the base development plans of logistic annexes to contingency plans. This could be accomplished by modifying the Joint Chiefs of Staff Memorandum, SM-643-69, Instruction for Base Development Planning in Support of Joint Contingency Operations; to ensure that the following are considered:

- (a) Assignment of responsibility for facilities maintenance.
- (b) Facilities maintenance resources required to implement the planned facilities maintenance program. These resources include the facilities, maintenance forces (troops, contractors, and local and third-country nationals), and material and equipment to accomplish the facilities maintenance requirements.
- (c) Plans for concurrently increasing facilities maintenance forces commensurate with the increase of facilities acquired during the escalation of a contingency operation.

(BM-2) The Services provide a sufficient number of military personnel trained in facilities maintenance functions in their active duty structure to provide an adequate nucleus to support contingency operations. The Air Force Prime BEEF concept is one method of accomplishment.

(BM-3) Facilities maintenance forces utilized in contingency operations be tailored to ensure continuity of vital operations, such as power generation, water supply, battle-damage repair, fire fighting, environmental control of critical electronic systems, and maintenance of critical petroleum, oil, and lubricants facilities. This tailoring of forces in the enclave areas in a contingency such as Vietnam should provide for a nucleus of military personnel to conduct essential functions during the absence of assigned civilian and/or contractor personnel as a result of civil unrest, labor strikes, or enemy activities and to ensure adequate management and supervision of the facilities maintenance functions. In forward areas, where facilities maintenance forces are subject to substantial interruption by enemy actions, these forces should consist primarily of military personnel in organized facilities maintenance units, such as Prime BEEF, Construction Battalion Maintenance Units, or Utility Detachments.

(BM-4) Planning for contingency operations consider utilization of civilian and contract facilities maintenance personnel to the maximum extent feasible. When utilization of facilities maintenance contractor(s) is specified, applicable plans should address the following:

- (a) The size of the contractor force to be employed.
- (b) The number of contractors proposed for employment.
- (c) The assignment of responsibility for contract management, supervision, and administration.
- (d) The locations contemplated for assignment to the facilities maintenance contractors.

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(BM-5) The Office of the Secretary of Defense sponsor legislation (10 USC 2674) to increase the statutory limitation for Operations and Maintenance funded minor new construction projects to at least \$50,000.

(BM-6) The Office of the Secretary of Defense sponsor legislation (10 USC 2673) to permit the delegation of approval authority to appropriate command levels to replace or restore facilities that have been damaged or destroyed by hostile action or natural calamity in a combat zone. Further, the provisions requiring prior notification of the Armed Services Committees of the Congress in those instances be deleted.

(BM-7) The Armed Services Procurement Regulation, Section 3, not be interpreted to require approval at the Office of the Secretary of Defense level in determining whether the sole source or competitive-type negotiated contract for provision of facilities maintenance, in a combat zone, is most appropriate and is in the best interests of the Government.

(BM-8) The provisions of the Armed Services Procurement Regulation, Section 22, be amended by the Office of the Secretary of Defense to specifically permit the utilization of personal services contracts in a combat zone subject to approval by the responsible component commander.

(BM-9) Major contracts for facilities maintenance services entered into by the Services provide for the maximum use of contractor-furnished equipment unless there is a clear indication that it is more economical for the Government to furnish the equipment and the Government has the capability to do so.

(BM-10) The Services, through the Joint Logistics Commanders, make a determined effort to reduce the multiplicity of makes and models of equipment used in support of the facilities maintenance program. (See Chapter IX, Construction Monograph, and recommendations contained in Chapter VII, the Supply Management Monograph.)

(BM-11) The review of standards and planning factors by the Construction Board for contingency operations include standards and planning factors for utilities systems; the Board place emphasis on research and development in the area of package utilities systems for the generation of electric power, production of potable water, and sewage disposal; and the Services ensure that such package systems are included in stocks of war reserve material.

## **2. AMMUNITION RECOMMENDATIONS**



## **AMMUNITION RECOMMENDATIONS**

(AM-1) In addition to a normal pipeline to replenish actual ammunition expenditures, the Services be authorized to maintain a level of national assets in support of combat sufficient to respond to emergencies and surges.

(AM-2) Services plans for the use of obsolescent munitions held in war reserves give special attention to testing compatibility of new aircraft with these munitions.

(AM-3) The Services plan ammunition storage and distribution by complete rounds to the maximum practicable extent and place emphasis in research and development on reducing to a minimum the number of components necessary to assemble a complete round.

(AM-4) Commanders with ammunition logistic responsibility in time of war retain a nucleus staff capability in peace and the Services plan to augment key staffs with qualified ammunition logisticians promptly at the start of a contingency.

(AM-5) Ammunition inventory objectives for all the Services be based on the D-to-P concept.

(AM-6) When the Services have established what they consider to be valid requirements for ammunition inventory objectives, care be taken that these continue to be identified as requirements regardless of program and budget decisions.

(AM-7) Organizations maintained in the Office of the Secretary of Defense for staffing ammunition matters be formally chartered so that division of authorities and responsibilities between the military departments and the Secretary of Defense are clearly defined.

(AM-8) Each Service retain the current ammunition information systems that were developed to meet the needs of the Vietnam War. Continue to improve these basic systems to permit timely updating of expenditure rates, meet the command and management needs of the Services and furnish the data requirements of the unified chain of command and the Office of the Secretary of Defense. During peacetime, periodically exercise these systems in simulations of wartime situations.

(AM-9) In recognition of the absence of necessary lead time in war for awarding follow-on munitions contracts, the military departments identify those items to be procured from sole source producers. These items be exempted from mandatory competitive procurement during a contingency, with the understanding that competition will be introduced when the exigencies of the situation will permit.

(AM-10) The military departments identify those munitions components that require long lead time for production. Establish the base for these items in peacetime by awarding firm contracts requiring maintenance of the desired state of readiness, necessary production planning, and maintenance of the pertinent technical data package to these planned producers in lieu of Mobilization Planning Schedules (DD 1519). Award on a competitive basis to these established producers those requirements that develop in peacetime that constitute economical production quantities.

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(AM-11) During peacetime the military departments develop and maintain, via annual update, Class Determinations and Findings in consonance with mobilization plans so that these Class Determinations and Findings can be immediately submitted for Secretarial approval when hostilities appear imminent or commence.

(AM-12) The approval authority of the Secretaries of the military departments for facilities projects pertinent to establishment or expansion of the production base, as set forth in Department of Defense Directive 4275.5, be increased from \$1 million to \$5 million.

(AM-13) The military departments develop firm plans for relating funding tradeoffs between retention and maintenance of industrial production equipment and D-to-P stockage level objectives.

(AM-14) The military departments initiate a joint review of ammunition procurement and production responsibilities for purposes of recommending changes to Department of Defense Instruction 4115.1, including adjustments in existing capability through transfer of facilities as required. Action be taken to consolidate general-purpose bomb responsibilities under the Navy, removing the Army from involvement in an item it does not employ. Other items that should be reviewed to determine the feasibility of single Service assignment are incendiary bombs, projectile fuzes, explosives, and small arms ammunition.

(AM-15) The military departments maintain the current ammunition outloading facilities on both the east and the west coasts adequate for planned contingencies, giving continued emphasis to the maintenance of adequate explosive safety zones at existing ammunition outloading ports.

(AM-16) The Services vigorously pursue existing programs and projects for the development of containerization systems and related concepts for the delivery of ammunition to a theater of operations, including container ship discharge in the stream.

(AM-17) The Services, through the Joint Logistics Commanders and in coordination with the Armed Services Explosive Safety Board, develop specific criteria for the storage of all types of air and ground munitions in a combat zone. These criteria would guide the commanders in establishing construction standards for ammunition facilities (including covered storage) and should include quantity-distance risk probabilities for use in arriving at decisions on waivers.

(AM-18) The levels of ammunition stored in a combat zone be controlled by the commanders concerned to minimize the amounts stored and still provide a reasonable level to accommodate fluctuations in the pipeline or combat emergencies. The Army's recently adopted inventory in motion is such a concept.

(AM-19) The Services maintain a viable career program with supporting training base to identify a cadre of ammunition logistic personnel of requisite grades and skills to ensure the availability of ammunition logistic support personnel in accordance with contingency plans.

### **3. AUTOMATIC DATA PROCESSING SYSTEMS RECOMMENDATIONS**

## **AUTOMATIC DATA PROCESSING SYSTEMS RECOMMENDATIONS**

(DP-1) For contingency operations each Service have available Automatic Data Processing Systems packages compatible with the continental United States system with which they must interface. These Automatic Data Processing Systems packages should include mobile Automatic Data Processing equipment, proven programs, data transmission equipment, and trained personnel, and must be so designed that they can be readily expanded to meet unforeseen requirements without major problems in translation to greater capacity. Contingency plans should provide for early deployment of an Automatic Data Processing Systems package adequate to meet forecasted in-country logistics management requirements, with a reasonable safety factor to meet unforeseen demands.

(DP-2) Each Service and the Defense Supply Agency provide definitive Service-wide guidelines such as those illustrated in Army Materiel Command Regulation 18-12, August 1967, setting forth the responsibilities of functional managers, systems analysts, and programmers in the translation of logistic policies, objectives, and concepts into the design and development of automated logistic operational and management systems to increase their responsiveness to functional management requirements and permit the development of logistic concepts in consonance with Automatic Data Processing technology.

(DP-3) A joint Service/Defense Supply Agency task group be established by the Assistant Secretary of Defense (Comptroller) Automatic Data Processing Policy Committee to develop policies and procedures for the establishment of a central library of logistically oriented Automatic Data Processing programs within each Service and the Defense Supply Agency to facilitate exchange of programs within and among the services and Defense Supply Agency.

#### **4. COMMON SUPPLY RECOMMENDATIONS**

## COMMON SUPPLY RECOMMENDATIONS

(CS-1) Common supply overseas be applied to a definitive list of items, substitutes included, jointly developed by the Services; that common supply be implemented with a jointly prepared set of common supply and funding procedures; that it be used as a normal procedure whenever implemented; that implementation in both peacetime and emergencies be at the direction of commanders of unified commands following the principles of JCS Publication 2, Section 6, in assigning responsibility for common supply to Services; that commanders of unified commands tailor implementations as to items to be supported, designate the Service or Services to provide such support, and schedule the phasing-in of common supply in times of emergency; and that the specific determinations made regarding common supply support during emergencies be included in appropriate contingency plans.

(CS-2) In jointly developing a catalog of integrated manager items to be supplied under common supply procedures, the Services categorize such items as follows:

(a) Category I—Items that have high, stable, predictable demands, amount to large bulk and tonnage, and are used by two or more Services in the overseas area being considered.

(b) Category II—Items that are used by two or more Services but do not meet the stable and high demand criteria of Category I.

(c) Category III—Items that are used by only one Service in the overseas area being considered.

(CS-3) When jointly deciding whether integrated manager items should be included in a common supply system, the Services utilize the following decision rules:

(a) All Category I items should normally be included in the common supply system.

(b) All Category II items should be carefully reviewed to determine which items must be included in the common supply system being established, with due consideration being given to the significance of the costs involved and to the impacts on normal Service supply procedures.

(c) All Category III items should normally be excluded from the common supply system.

(CS-4) The commanders of unified commands and appropriate Service commands, carrying out their responsibilities for providing and arranging supply support of their forces in peacetime or during war, use the following criteria for initiating common supply:

(a) Mission performance of activities supported will be improved.

(b) Common supply economies override additional costs at local level.

(c) Resources are sufficient to provide the required support.

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- (d) Time and distance factors do not adversely affect performance.
- (e) Considerable backhauls will not be involved.
- (f) Likely contingencies will not require a change.

(CS-5) In addition to common supply as directed by the commanders of unified commands, the Services be encouraged by the commanders of unified commands to augment common supply support through the use of Interservice Support Agreements where a potential exists among individual Service activities for this type of support.

(CS-6) The Office of the Secretary of Defense reject the concept of providing overseas support for the full range of Defense Supply Agency/General Services Administration/U. S. Army Tank Automotive Command items through common supply systems.

## **5. COMMUNICATIONS RECOMMENDATIONS**



## COMMUNICATIONS RECOMMENDATIONS

(CM-1) The Joint Chiefs of Staff instructions for contingency planning give specific reference to the identification of logistic requirements for communications and the means of gaining access to the Automatic Digital Network system.

(CM-2) The Services include the identification, quantification, and justification of specific logistic requirements for communications as part of their basic doctrinal reviews and studies, e. g., the Army - 80 series of studies.

(CM-3) The Services develop planning factors for communications services against which requests for logistic and other communications services can be measured. These planning factors should include but not be limited to, a priority-oriented list of subscribers, grades of service, and cost.

(CM-4) The Joint Chiefs of Staff and service logistical gaming and computer simulations include realistic communications effects to the maximum extent possible. As practicable, specific logistical requirements for communications resulting from such simulation should be provided for contingency and doctrinal planning purposes.

(CM-5) The Secretary of Defense direct necessary actions to achieve a capability for the rapid extension of Automatic Digital Network (AUTODIN) to remote theaters-of-operations. These actions should include:

(a) Tasking the Director, Defense Communications Agency, to perform systems engineering effort toward providing solutions to the satellite communications transit time effect with a target of establishing high-speed (up to 200 cards per minute) data links via satellites.

(b) The AN/TSC-54 mobile satellite terminals be modified to provide at least a 12-channel capacity.

(c) Pending the modification of the AN/TSC-54s, the Joint Chiefs of Staff designate two of the existing AN/MS-46 transportable satellite terminals for support of contingency operations.

(d) The three existing Defense Communications System contingency packages be augmented to include the communications equipment necessary to provide a high-speed data (200 cards per minute) terminal for AUTODIN access, making maximum use of available commercial equipment to provide an immediate capability.

(CM-6) The military departments take that action necessary to achieve a high-capacity tactical data transmission capability that is fully compatible with AUTODIN. This should include initiation of the systems engineering effort required to provide message switching and transmission over low-quality tactical communications systems. As a part of this effort, the Navy should continue its engineering development of a reliable high-frequency fleet logistic digital data transmission system capable of interfacing with high-speed automated systems ashore.

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(CM-7) The Joint Chiefs of Staff and the Services ensure that plans for logistical operations recognize the need for alternative methods of transferring data when electrical communications are minimal or disrupted.

(CM-8) The Joint Chiefs of Staff direct the action necessary to achieve maximum commonality and compatibility in the acquisition of communications-electronics equipment to sustain joint operations. In addition, the Joint Chiefs of Staff:

(a) Identify the tactical communications-electronics equipment that must interface with the Defense Communications System.

(b) Resolve differences arising between Defense Communications Agency interface standards and tactical communications standards, recognizing unique service requirements.

(CM-9) The Joint Chiefs of Staff revise JCS Publication 11, Tactical Communications Planning Guide, to correct numerous technical inaccuracies.

(CM-10) Heavy transportable modular communications equipment for Defense Communications System restoration or extension be acquired at the earliest practicable date.

(CM-11) The military departments orient their preengineered fixed-plant facilities programs to include heavy transportable communications equipment incorporating the modular concepts recommended for Defense Communications System restoration and extension.

(CM-12) In the development of concepts and planning for automatic data processing equipment to support logistics, the Services give full and specific consideration to the requirements placed on communications, available capabilities, capacities, vulnerability, and costs and to tradeoffs between the requirements for data and for communications.

## **6. CONSTRUCTION RECOMMENDATIONS**

## CONSTRUCTION RECOMMENDATIONS

(CO-1) The Joint Chiefs of Staff ensure that the following are accomplished:

- (a) Ensuring a continuing full exchange of information among the Services in major aspects of base development planning.
- (b) Identifying any interface problems among the Services and unified chains of command in base development planning and related information.
- (c) Monitoring progress in regard to standardization and planning factors.
- (d) Monitoring overall readiness to meet contingency construction needs, the status of major deficiencies identified in the contingency planning process, and the availability of any specific assets of such critical importance that the lack of them would limit significantly contingency plan implementation.

(CO-2) In order to assist the Joint Chiefs of Staff in the accomplishment of the preceding responsibilities, the Terms of Reference of the Construction Board for Contingency Operations be amended as indicated in Appendix F to the Construction Monograph.

Note 1: While agreeing with Recommendation (CO-1), the Navy Member of the JLRB does not agree with those portions of Appendix F which would change substantially the purpose of the Construction Board for Contingency Operations. The Navy Member set forth the following reasons:

"Following a review of the report of the Special Military Construction Study Group by the Joint Staff and Military Services, actions on several of the Study Group items were combined into a recommendation promulgated by JCS Memoranda (SM-801-68, SM-802-68, SM-803-68) of 11 December 1968, namely:

"That a Joint Staff/Service board be established to exchange information concerning results of Service functional component and retrievable concept research and development programs. The use of pre-engineered units which can be retrieved and relocated will be examined in detail. The Board will develop construction standards and planning factors for adaptation to various contingency situations.

"I concur with the Terms of Reference as promulgated by JCS memorandum SM-352-69 of 4 June 1969 to implement the recommendation. Every effort should be made to fulfill the responsibilities so assigned at the earliest practicable date including the assistance of personnel working full time to the extent necessary. In addition, I believe it would be appropriate to task the Board also with monitoring progress in the application of the standards and planning factors developed, and in ensuring a continuing full exchange of information on the technical aspects of base development planning for contingencies.

"In my opinion, other recommended changes to the Terms of Reference would extend the purpose and responsibilities of the Board into matters to do with policy, command relationships, programming, requirements, planning, and acquisition of material highly inappropriate for a specialized board. It would, I believe, inject the Board into matters which should be the subject of coordinated efforts within the Joint Staff and at the higher levels of the Military Services; tend to compartmentalize matters related to the construction aspects of planning and readiness; increase the

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danger of by-passing the responsible chains of command; encourage redundancy and duplication; and result in inefficient use of personnel."

Note 2: The USMC Member comments as follows:

"While agreeing with the great importance of both planning and execution of those aspects of the Military Construction Programs that relate to Base Development in Support of Joint Contingency Operations, I have certain reservations regarding the course of action recommended by the majority of the JLRB which is proposed as a means of improving existing procedures.

"The Joint Chiefs of Staff have been acutely aware of the shortfalls that manifest themselves in the support of operations in the Republic of Vietnam after 1965 and have taken a number of positive actions since 1968 designed to identify causes, fill voids, promulgate uniform procedures and undertake review and monitoring of the processes.

"It is apparent that action has been initiated by the Joint Chiefs of Staff to remedy many of the shortcomings in the area of base development and construction which occurred in the Vietnam buildup. The most prominent of these actions by the JCS are the issuance of SM-643-69 and the establishment of the Construction Board for Contingency Operations. Other appropriate actions are known to be in work and continuing.

"In my view, it is too early for either the JLRB or the JCS to have reached definitive conclusions as to the overall pattern by which the JCS will achieve and retain the high degree of control that is essential to the success of base development in support of future contingency operations.

"I am in agreement that the detailed responsibilities set forth in the Construction Monograph and the need for the full time assistance for the Contingency Board are valid and need to be assigned to suitable subordinate functionaries of the JCS, but the alignment and delegation of authority should be based on the evaluation which will only be possible when the ongoing preliminary steps have been completed. I, therefore, suggest this alternate be adopted."

(CO-3) Because of their importance, high priority be assigned to the completion of tasks assigned to the Construction Board for Contingency Operations and officers be assigned to work for the Board on a full-time basis as necessary to complete these tasks.

(CO-4) Rather than concentrating on specific details such as individual line item identification and siting, contingency base development planning place emphasis on the following:

- (a) Determination of gross requirements derived from typical site layouts.
- (b) Troop and contractor effort requirements.
- (c) Funding required under variable parameters of force levels, locations, types of operations, and climatic conditions.
- (d) Key construction items with long lead times with particular attention to dredges, pile drivers, prefabricated piers, and rock crushers.

(CO-5) Provisions be made for the prompt augmentation of engineer staffs during the early stages of the buildup to adapt gross construction requirements to actual field conditions.

(CO-6) Subject to overall controls, the flexibility provided to the commander of a unified command in the execution of the construction program in a combat area be broad and commensurate with the responsibilities assigned and the exigency of the situation. To achieve this, the Office of the Secretary of Defense should develop and sponsor a completely new appropriation with established formats, programming procedures, and limitations specifically tailored to achieve an optimum balance of flexibility, responsiveness, visibility, and good management. This appropriation would be temporary in nature and applicable only during the

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contingency situation. It is suggested that such an appropriation be called "Contingency Construction Appropriation" and that the development of such an appropriation, and the management thereof, be based on the following:

- (a) Definition of programs on the basis of gross requirements identified by a limited number of standard Department of Defense facility category groups.
- (b) Appropriation of funds commensurate with the level of effort to be mobilized and maintained, in keeping with the gross requirements, the completion schedules, and the troop-contractor mix.
- (c) Mobilization and demobilization costs funded separately from other construction costs.
- (d) Introduction of line item identification at the construction directive stage of program execution.
- (e) Authorization to make exceptions to "full funding."
- (f) Allocation of construction funds in a single account for each Service without fiscal year identification of follow-on funds. Such follow-on funds should be additive to the accounts applicable to facility category groups in the total program.
- (g) Control of construction above the unified command level not based on detailed line item approval but exercised through broad guidance and veto power, with base "Complex Reviews" and established reporting systems providing the necessary data for decision-making.

(CO-7) Construction programming procedures to be employed in future contingencies be developed in advance between the Department of Defense and the appropriate congressional committees and that legislative proposals be drafted to implement the procedures agreed upon.

(CO-8) The Joint Chiefs of Staff instructions regarding base development planning for joint operations (SM-643-69) require specific provision for the coordination and control of construction in the combat area, as suitable to the contingency operation planned. The planning should set forth the composition and role of a construction directorate on the staff of the joint field commander if warranted by the scope and complexity of the contingency.

(CO-9) The contingency reporting system under development by the Joint Chiefs of Staff stress simplicity, reduction of information requirements to key elements pertinent to a combat situation, capability for expansion without major changes in automatic data processing programs and format, and compatibility with the program and funding management requirements of the Services.

(CO-10) Planning for major contingency operations be based on the employment of a hard core of engineer construction troops augmented to the extent practicable by contractor forces.

(CO-11) In the case of plans for major contractor effort, the requirements contained in the instructions for base development planning in support of joint operations, recently issued by the Joint Chiefs of Staff (SM-643-69), be expanded to require, as appropriate, such specifics as:

- (a) The time-phased plan for the mobilization of the contractor level of effort.
- (b) The number and types of contractors to be employed.
- (c) The degree to which the contractors are to be administratively and logistically independent (e.g., in such areas as procurement of construction materials and transportation).

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(CO-12) Real estate be accorded special treatment in contingency planning along the lines taken by the Joint Chiefs of Staff with a goal of attaining in base development planning a comprehensive definition of real property requirements.

(CO-13) The Office of the Secretary of Defense, in coordination with the Department of State, establish a file of draft real estate proposals suitable for the most likely host nations.

(CO-14) The Services establish simplified procedures for requesting and approving construction in the combat zone.

(CO-15) Following the development of construction standards and planning factors by the Construction Board for Contingency Operations, operation plans and implementing orders specify the standards to be used and provide necessary guidance to adapt the standards and factors to the circumstances of the plan.

(CO-16) Contingency planning provide for adequate organic construction capabilities and appropriate delegation of approval authority to permit commanders to accomplish minor, urgent construction projects in a timely manner.

(CO-17) Contingency plans and base development plans address the way in which Army troop construction support will be provided to meet Air Force requirements.

(CO-18) The instructions issued by the Joint Chiefs of Staff for base development planning in support of joint operations (SM-643-69) include consideration of the establishment of an in-theater forward depot geared to regulate (hold and forward on call) the flow of selected construction materials for each plan developed.

(CO-19) The Services, through the Joint Logistic Commanders, take under study the feasibility of the establishment of war reserve pools of critical commercial type construction equipment to be managed and rotated by the manufacturers concerned. (The Army's Commercial Construction Equipment System, presently under development, appears to have considerable merit regarding this course of action.) This would be enhanced by the use of sole source, multiyear contracts as recommended in Chapter VII, Supply Management Monograph.

(CO-20) Initial provisioning of repair parts for construction equipment be reviewed by the Services with a view to increasing accompanying and follow-on spares to a level commensurate with realistic combat construction experience.

(CO-21) Common supply provisions be made in accordance with the recommendation in that regard in the Common Supply Monograph.

## **7. CONTAINERIZATION RECOMMENDATIONS**



## CONTAINERIZATION RECOMMENDATIONS

(CN-1) Based on the sound economic case for containerization and the uniformly favorable response to Vietnam experiences, the Department of Defense adopt a policy that all ocean-going military cargo that will fit in a container will move in a container, with deviations to this policy treated as clear-cut exceptions.

(CN-2) The military departments exploit the use of containers by maximizing the use of containers for purposes to include:

- (a) Moving unit equipment to support deployments.
- (b) Prebinning of stocks when desirable to facilitate in-theater logistic operations.
- (c) General cargo distribution.
- (d) Temporary storage.

(CN-3) The military departments design portable facilities such as shelters, shops, housing, communication centers, computer centers, command centers, and other advanced base functional elements so that they can be moved as standard van-containers.

(CN-4) The Joint Chiefs of Staff determine the number and types of container-capable ships that must be in the Military Sea Transportation Service nucleus fleet in order to implement a containerization policy that will provide the resources necessary to meet requirements for peacetime support, and for contingency operations until such time as commercial container ship service can be made available and operational in the contingency area. Other recommendations that relate to this subject appear in the Transportation Monograph.

(CN-5) The Secretary of Defense seek to have the legislation stemming from the President's Merchant Marine Program include positive provision for ensuring the responsiveness of modern U. S. flag container ships with gantry crane rails installed to meet military requirements under various conditions of emergency. Other recommendations that relate to this subject appear in the Transportation Monograph.

(CN-6) The Services jointly develop and test the capabilities and procedures for the conduct of logistics-over-the-shore container operations. Based on the results of these tests, the Services should establish their requirements for a family of containers, container ships, and container-handling equipment to support logistics-over-the-shore operations and should procure sufficient quantities of this equipment for assured support of a contingency operation in under-developed areas.

(CN-7) The Secretary of Defense support the requirements of the Services to ensure the capability to support the port clearance and onward movement of containers in the area of operations. This capability should provide the necessary heavy equipment including interchangeable shipboard or pier-mounted gantry cranes, materials handling equipment, heavy-duty tractors, and heavy-lift helicopters. Other recommendations that relate to this subject appear in the Transportation Monograph.

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(CN-8) The Secretary of Defense support the military ocean terminal modernization including ammunition terminals. Other recommendations that relate to this subject appear in the Transportation Monograph.

(CN-9) The Logistic Systems Policy Committee task the Departments of the Army and the Air Force to lead jointly staffed efforts to coordinate the development of land-water-land and land-air-land container-oriented logistic systems, respectively. The thrust of these efforts should stress the "how" and not the "why" of containerization, and be directed toward early development of container-oriented logistic systems. In order to ensure the incorporation of all relevant considerations and maximize the probability of prompt implementation of recommendations, the senior Service representatives engaged in the joint efforts should be responsible to their respective Services as well as to the Director of the joint effort.

## **8. DSA/GSA RECOMMENDATIONS**

## DSA/GSA RECOMMENDATIONS

(DG-1) Item Management Coding policies, procedures, and criteria be reviewed by the Services (through the Joint Logistics Commanders) and the integrated managers for adequacy in light of current needs, situations, and conditions and that recommendations for updating and simplification be submitted.

(DG-2) The following excepting criterion be added to the approved Item Management Coding criteria:

UNIQUE ITEMS - These are items of such unique characteristics that they can be identified as having ultimate usage by only one Service.

(DG-3) In the future, the Office of the Secretary of Defense give extreme care and consideration to existing commitments and capabilities in determining the timing for accomplishment of programs, such as the Retroactive Item Management Coding Program, that would impose severe added logistics workloads on the Services.

(DG-4) The concept of management of General Mobilization Reserves of Defense Supply Agency managed materiel be revised by the Office of the Secretary of Defense as follows:

(a) Conventional mobilization reserve item selection criteria and computation procedures be retained only for the following categories of Defense Supply Agency managed materiel:

1. Medical
2. Clothing and textiles
3. Subsistence
4. Packaged petroleum products
5. Photographic supplies
6. Field fortification materiel

(b) For all other commodities assigned to the Defense Supply Agency for management, item selection by the Services be tightened to restrict selection for mobilization reserve stockage to a limited number of items that are of critical combat importance. (Other recommendations concerning logistics guidance and mobilization reserves are in the Logistics Planning Monograph.)

(DG-5) The Services and the Defense Supply Agency develop and document techniques for accelerated provisioning during future military emergencies. These techniques should include requirements for provisioning of commercial end-items to be deployed in combat theaters; reducing the frequency of Engineering Change Orders; and policies and procedures for expediting repair parts ordering. These techniques should be published as emergency annexes to provisioning instructions.

## **9. EXCESSES RECOMMENDATIONS**

## EXCESSES RECOMMENDATIONS

(EX-1) The identification of excesses be initiated as early as possible in any future conflicts, and an organization and system for the efficient, effective redistribution of excesses in overseas theaters be maintained on a permanent basis.

Most of the recommendations found in other monographs for the improvement of these logistic system will also contribute to the reduction of excesses. The most significant of the recommendations are repeated below:

a. With Respect to Personnel. In the Military Personnel Monograph, the Board recommends that:

(MP-2) The Services review selected current and proposed contingency plans and evaluate the supportive personnel policies to ensure that an adequate training and rotational base by skill category is provided.

(MP-1) Contingency planning in the Services include alternatives that provide efficient logistic manpower resources in the event that Reserve forces are not mobilized.

b. With Respect to Facilities. In the Supply Management Monograph, the Board recommends that:

(SM-32) The military services develop methods of establishing initial essential supply storage facilities capable of being erected and outfitted in minimum time without reliance on standard construction programs. The Army's Containerized Depot--Project YZJ, the Navy's Advanced Base Functional Components, the Marine Corps Expeditionary Air Field, and the Air Force's Project Coronet Bare concept suggest methods which should be exploited and developed. A possible means of providing initial minimum essential supply storage facilities include pre-packaged mobile depots, vans, binned containers, semipermanent quick-erect structures, landing matting, portable reefer units, floating storage, and rapid soil stabilization techniques. The military services should include such capabilities in planning for contingencies.

c. With Respect to ADP Equipment. In the Automatic Data Processing Systems Monograph, the Board recommends that:

(DP-1) For contingency operations, each Service have available Automatic Data Processing Systems packages compatible with the continental United States system with which they must interface. These Automatic Data Processing Systems packages should include mobile Automatic Data Processing equipment, proven programs, data transmission equipment, and trained personnel, and must be so designed that they can be readily expanded to meet unforeseen requirements without major problems in translation to greater capacity. Contingency plans should provide for early deployment of an Automatic Data Processing Systems package adequate to meet forecasted in-country logistics management requirements, with a reasonable safety factor to meet unforeseen demands.

d. With Respect to Range and Depth of Stocks. In the Supply Management Monograph, the Board recommends that:

(SM-21) All Services reduce the stockage of demand supported consumable items of materiel, including repair parts in forward operating locations, to a range of items in accordance with the following criteria:

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(a) Each Service should establish stringent targets of a specific number of frequencies of demand for an item to qualify for initial stockage and retention. The targets will vary by Service, activity, type of materiel, and combat environment.

(b) During the early stages of a contingency when facilities and personnel are at best marginal, the criteria for stockage should be particularly stringent and could then be relaxed to the extent that economy and capacity to handle materiel and data warrant.

e. With Respect to Movement Control. In the Supply Management and Transportation Monographs, the Board recommends that:

(SM-35) The Army continue to maintain Logistic Control Offices and a central logistic data bank with the capability to provide timely and pertinent logistic intelligence for worldwide overseas Army responsibility materiel movements.

(TR-9) The Joint Chiefs of Staff establish positive procedures to ensure that the commanders of unified commands determine realistic cargo reception and clearance capabilities in connection with their contingency planning, that those commanders and the Services consider those capabilities in determining the phasing of their equipment and supply requirements, and that ships not be sailed to the contingency area unless they can be unloaded expeditiously.

f. With Respect to Maintenance. In the Maintenance Monograph, the Board recommends that:

(MT-17) Each Service develop and refine reparable control systems for selected components which will:

(a) Assure that, from the time of removal from a major end item, the location and status of each component is known at the proper management levels until the item is repaired and returned to service or condemned and dropped for disposal.

(b) Make appropriate use of air transportation for movement of reparables.

g. With Respect to Containerization. In the Containerization Monograph, the Board recommends that:

(CN-2) The military departments exploit the use of containers by maximizing the use of containers for purposes to include:

(a) Moving unit equipment to support deployments.

(b) Prebinning of stocks when desirable to facilitate in-theater logistic operations.

(c) General cargo distribution.

(d) Temporary storage.

(EX-2) The administrator for the Defense Materiel Utilization Program, Director, Defense Supply Agency, in coordination with the Services, review current excess reporting systems and recommend a reporting system which will provide comparable data in a single report showing by Service worldwide excesses, both potential and declared.

(EX-3) The Assistant Secretary of Defense (ASD (I&L)) approve the concept of a single worldwide excess screening activity under the control of the Defense Supply Agency. The Defense Supply Agency should be charged to develop, in close coordination with the Services, standard systems and procedures required to implement this concept.

## **10. FINANCIAL MANAGEMENT RECOMMENDATIONS**



## **FINANCIAL MANAGEMENT RECOMMENDATIONS**

(FM-1) The Services, when planning contingencies, outline appropriate financial management systems for Operation and Maintenance funds supporting operations in the combat areas. Such systems should:

- (a) Be appropriate to the combat environment.
- (b) Avoid extension of financial accounting to a level that interferes with combat operations or places an undue administrative burden on combat organizations or their logistic support units.
- (c) Be mechanized to the extent practicable.
- (d) Be integrated with the Service's total resource management system.
- (e) Parallel the Service's normal system to the extent practicable.
- (f) Identify expense materiel with an appropriate cost account.
- (g) Use financial information in the determination of requirements and identification of areas for improved management.
- (h) Provide useful reports to appropriate levels having management responsibilities.

(FM-2) The Office of the Secretary of Defense establish with the Bureau of the Budget the conditions required to obtain apportionment exemptions for stock funds and a schedule for qualifying each fund for exemption.

(FM-3) The Office of the Secretary of Defense seek permanent statutory authority (replacing the general provision included annually in the Defense Appropriation Act) to permit sufficient cash balance of working capital funds to be only the amount needed to cover disbursements and to authorize transfers of capital between working capital funds.

(FM-4) To support sound management, the Office of the Secretary of Defense program more adequate cash balances in stock funds, including a greater allowance for unanticipated program changes, so that the planned balance in each fund should be equal to at least 30 days of disbursements.

(FM-5) Since the feasibility and worth of auditing in combat theaters has been established, the Services should plan to conduct similar audits in combat theaters during future military actions.

(FM-6) The Secretary of Defense request the Director, Bureau of the Budget, to exclude wage board employees of industrially funded activities from manpower ceilings and to permit employment levels to fluctuate with workload and available funding of those activities.

## **11. FOREIGN ASSISTANCE RECOMMENDATIONS**

## FOREIGN ASSISTANCE RECOMMENDATIONS

(FA-1) The Secretary of Defense recommend to the Secretary of State that contingency operation interface requirements be introduced into the National Security Council System for study and resolution, with a view toward making a clear determination and assignment of areas of interdepartmental responsibilities.

(FA-2) The Secretary of Defense recommend to the Secretary of State that the areas listed below be introduced into the National Security Council System for study and resolution.

(a) Definition and assignment of contingency planning requirements, contingency operations responsibility, and basic planning assumptions to involved U.S. Government departments and agencies.

(b) Examination of the precedents of the Vietnam conflict to ensure that planning requirements are fully defined and that realistic planning assumptions are employed in connection with enhanced military assistance and supporting civil assistance to the host government and allied forces involved in contingency operations.

(c) Consideration of the advantages to be gained by the establishment of an advanced "management system that includes: the definition of objectives and programs for United States Foreign Assistance; the development of quantitative indicators of progress toward these objectives; the orderly consideration of alternative means for accomplishing such objectives; and the adoption of methods for comparing actual results of programs and projects with those anticipated when they were undertaken."<sup>2</sup>

(FA-3) The Secretary of Defense should review, with the Secretary of State and the Administrator of the Agency for International Development (or its successor agency), the planned disposition of Department of Defense assets in Vietnam to coordinate planning for long-term support of assets being turned over to the Government of Vietnam.

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<sup>2</sup>Quoted from: The Foreign Assistance Act of 1961, as amended, Art. 621A.

## **12. LOGISTICS PLANNING RECOMMENDATIONS**

## LOGISTICS PLANNING RECOMMENDATIONS

(LP-1) The Secretary of Defense guidance concerning logistics be published as stable regulatory documents to facilitate computerized development of materiel requirements. Fundamental elements such as overseas pipeline, post-D-Day safety level, training, and D-to-P authorizations should be stable elements of the Logistics Guidance, although the value for any element may change. Further, when changes to the list of fundamental elements are necessary, they should be published one year before the date the Services and Defense Agencies have to submit budgets incorporating such changes to the Office of the Secretary of Defense.

(LP-2) The Joint Chiefs of Staff, in coordination with the Services, expedite the implementation of the proposed procedures currently under development in the Joint Operation Planning System.

(LP-3) The Joint Chiefs of Staff and the Services use those contingency plans, designated as complete plans, as follows:

(a) The critical shortfalls identified in those complete operation plans designated to undergo an Operation Plan Package Appraisal to determine logistic supportability should be validated as credible hard-core Special Contingency War Reserve requirements. These requirements would be additive to the total Force Structure War Reserve requirements and be recognized by the Department of Defense in the Planning, Programming, and Budgeting System. If the economic or political situation or higher Service priorities preclude funding, then the requirement should remain valid until satisfied.

(b) The logistic requirements of those complete operation plans that are not in the designated package will be compared with logistic assets, on hand or programmed, to establish additional Special Contingency War Reserve requirements that should also be considered for additional support under the Planning, Programming, and Budgeting System.

(LP-4) The Joint Chiefs of Staff, in coordination with the Services, expedite the development of an automated contingency reporting system (a refinement of the proposed Joint Automated Planning Support System) to provide reporting of essential logistic data upon which to base broad management judgments in the logistic appraisal process.

(LP-5) The Joint Chiefs of Staff provide common terminology so that for all purposes the identification and management of all war reserves, except Industrial Mobilization Facilities, be accomplished within the following three major categories:

(a) Force Structure War Reserves—Those materiel reserves authorized by the Secretary of Defense for the support of, and based on the composition of, the approved forces shown in the Five Year Defense Program.

(b) Special Contingency War Reserves—Those materiel reserves that are authorized, procured, and maintained to support unique requirements identified by logistic appraisal of specific operation plans and that are not contained in or justified by the composition of the approved force structure.

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(c) **Economic Retention War Reserves**—Those on-hand assets of war reserve materiel that are excess to levels approved for procurement by the Secretary of Defense and that can be economically held against some plausible future requirement.

(LP-6) The first tier subcategories of the Force Structure and Special Contingency War Reserves consist of requirements, acquisition objectives, and acquisition programming and assets; the Economic Retention War Reserve category will consist only of assets.

(LP-7) The Joint Chiefs of Staff publish the above terms and definitions in JCS Publication 1 and that the following terms and their definitions be considered for redefinition, consolidation, or deletion in accordance with recommendation (LP-5):

- (a) Contingency Retention Stock
- (b) General Mobilization Reserve Materiel Objective
- (c) General Mobilization Reserve Stocks
- (d) Joint Mobilization Reserves
- (e) Mobilization
- (f) Mobilization Base
- (g) Mobilization Materiel Requirement
- (h) Mobilization Materiel Requirement Adjustment
- (i) Mobilization Reserve Materiel Objective
- (j) Mobilization Materiel Procurement Objectives
- (k) Mobilization Reserve Materiel Requirement
- (l) Mobilization Reserves
- (m) M-Day Force Materiel Requirement
- (n) M-Day Materiel Assets
- (o) M-Day Materiel Requirements
- (p) M-Day Materiel Status
- (q) Mobilization Materiel Procurement Capability
- (r) Mobilization Reserve Stock(s)
- (s) Peacetime Force Materiel Assets
- (t) Peacetime Force Materiel Procurement Objective
- (u) Peacetime Force Materiel Requirement
- (v) Pre-positioned War Reserve Requirement
- (w) Pre-positioned War Reserve Stock
- (x) Total Materiel Objective

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- (y) Total Materiel Procurement Objective
- (z) Total Materiel Requirement
- (aa) Mobilization Reserve Stock
- (ab) Total Materiel Assets

(LP-8) The Office of the Secretary of Defense rewrite Department of Defense Instruction 4140.2, dated 28 July 1954, and that all related Department of Defense and Service directives be rewritten to incorporate the terminology, definitions, and management concepts and categories contained herein.

(LP-9) All future planning and budgeting directives issued within the Department of Defense recognize and adhere to the clear-cut distinction between Force Structure War Reserves, Special Contingency War Reserves, and Economic Retention War Reserves.

(LP-10) Each Service limit requirements for secondary items of Force Structure War Reserves to a minimum range of items necessary to sustain combat until additional resources can be made available from production. Initially, each Service should establish an arbitrary ceiling list of minimum requirements so as to give credibility for funding support to the essential hard-core items.

(LP-11) The Services' ongoing programs to obtain visibility over War Reserve Assets be actively pursued to the extent necessary to establish a pyramidal reporting system with focal points at each concerned echelon to maintain cognizance of the War Reserve Program.

(LP-12) The Joint Chiefs of Staff and the Office of the Secretary of Defense establish stable guidance for industrial mobilization production planning so that long-range industrial mobilization requirements can be supported independently of the short-term variations in force structure and funding.

(LP-13) After the establishment of stable guidance for long-range industrial mobilization production planning requirements, the military departments identify and establish a sustaining base capable of supporting minimum essential long-range mobilization production requirements.

(LP-14) After approval of this sustaining base by the Office of the Secretary of Defense, the military departments prepare plans for modernization and maintenance of Government-owned facilities included in the sustaining base to achieve improved responsiveness and capacity for future contingencies.

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### **13. MAINTENANCE RECOMMENDATIONS**



## **MAINTENANCE RECOMMENDATIONS**

(MT-1) The Army continue to expand and refine Closed Loop Support procedures and techniques to provide real-time visibility and control of intensively managed items.

(MT-2) The Army ensure that there is an adequately structured CONUS rotational base for military maintenance personnel.

(MT-3) The Services be specific in their planning on the necessity for contract maintenance personnel to augment an existing organic maintenance capability. Where contract maintenance augmentation is required, plans should address the following factors:

- (a) The size of the contractor force to be utilized.
- (b) The number of contractor firms proposed for employment.
- (c) Geographical locations proposed for assignment of maintenance contractors.

(MT-4) The Army service test and evaluate new maintenance concepts prior to reorganization of support units.

(MT-5) The Department of the Navy sponsor a study applicable to all Services of its overseas Civil Service programs and propose appropriate action to the Office of the Secretary of Defense that would provide incentives to attract the required number of highly qualified Wage Board and Graded Classification Act personnel necessary to supervise and train indigenous workers at overseas facilities.

(MT-6) The Office of the Secretary of Defense coordinate with the Treasury Department to obtain approval to establish a formal program implementing a credit system, allowing U. S.-manufactured products to be used for payment of services rendered by a foreign shipyard or contractor for United States ship repair work.

(MT-7) The Services, in order to maintain operational effectiveness but reduce to the maximum extent possible the requirement for personnel skills, equipment, facilities, and supplies in forward operating locations and bases, review on an item-by-item basis their decisions on where and at what level an item should be repaired.

(MT-8) The Air Force use future mobility service tests such as CORONET BARE to explore the feasibility of reducing forward area maintenance requirements.

(MT-9) The Air Force reexamine its support policies and procedures for vehicles and materials handling equipment in order to ensure support incident to deployment and increased operations.

(MT-10) Service deferred maintenance be stratified to identify those hard-core requirements for support of readiness objectives and the segments of deferred maintenance requirements, including those not in hard-core requirements, where there is a clear indication that a significant adverse impact will result from further deferral.

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(MT-11) The Office of the Secretary of Defense amend the Integrated Logistic Support Planning Guide (DOD 4100.35G) to include a defined element entitled Repair Level Decision.

(MT-12) The Services stress the elements of Integrated Logistic Support concerned with reliability, maintainability, repair level decisions, electronic test equipment, and technical data in the development of equipment.

(MT-13) The Services continue to develop specific analytic techniques for evaluating reliability and maintainability and for performing repair level analysis based on these evaluations.

(MT-14) Since the DOD Guide is designed for use at the top management level, the Services should expand this guidance to provide detailed in-house guides and techniques for use in maintenance engineering, provisioning, and associated support planning functions.

(MT-15) In recognition of the essentiality of a viable and responsive depot maintenance capability, the Services and the Office of the Secretary of Defense take steps to achieve a reasonably stable posture in their organic depot maintenance structure in the continental United States.

(MT-16) The Secretary of Defense continue to exclude industrially funded activities from overtime limitations.

(MT-17) Each Service develop and refine reparable control systems for selected components which will:

(a) Ensure that, from the time of removal from a major end item, the location and status of each component is known at the proper management levels until it is repaired and returned to service or condemned and dropped for disposal.

(b) Make appropriate use of air transportation for movement of reparables.

**14. MILITARY PERSONNEL IN OPERATIONAL  
LOGISTICS RECOMMENDATIONS**

## **MILITARY PERSONNEL IN OPERATIONAL LOGISTICS RECOMMENDATIONS**

(MP-1) Contingency planning include alternatives that provide efficient logistical manpower resources in the event that Reserve forces are not mobilized.

(MP-2) The Services review selected current and proposed contingency plans and evaluate the supportive personnel policies to ensure that an adequate training and rotational base by skill category is provided.

(MP-3) The Services develop and initiate plans and policies for restructuring the Active Forces to the extent necessary to provide the highly specialized, long-lead-time logistical personnel to meet requirements imposed by contingency plans.

(MP-4) The Department of the Army review and establish the number of spaces in the Active Forces required to maintain an adequate logistical manpower rotation base, retaining a balanced military/civilian ratio that is responsive to contingency operations with or without mobilization.

(MP-5) The Department of the Air Force review the aerial port/air terminal system of the Military Airlift Command to determine and establish as necessary the number of spaces in the Active Forces required in CONUS aerial port/air terminal manpower authorizations to provide a training and rotational base adequate to anticipated contingency requirements.

**15. PETROLEUM, OIL, AND LUBRICANTS  
RECOMMENDATIONS**

## **PETROLEUM, OIL, AND LUBRICANTS RECOMMENDATIONS**

(PL-1) Contingency plans specifically address the following to the extent appropriate to the situation:

- (a) Initial use of floating storage.
- (b) The construction of facilities adequate for the off-loading of large tankers, storage, and transshipment.

(PL-2) When large-scale new POL facilities are required the order of priority for providing them should be:

- (a) Military construction.
- (b) Contractor construction leased to the military for operation.
- (c) Contractor construction and contractor management under specific conditions providing for adequate Government control and protection of Government investment.
- (d) Contractor construction augmenting existing commercial facilities with clear contract provisions to establish military preferential priorities.

(PL-3) Deliveries to overseas areas in a combat situation by commercial tankers other than under MSTS charter be avoided whenever possible.

(PL-4) In case deliveries by commercial tankers other than under MSTS charter are required, the Defense Supply Agency/Defense Fuel Supply Center, in coordination with the Joint Chiefs of Staff and the military departments, develop an information system on the status of the tankers and their cargo to facilitate coordination with MSTS shipments and diversions in the event of an emergency.

(PL-5) The Defense Supply Agency/Defense Fuel Supply Center assure adequate contract administration of its overseas contracts.

(PL-6) Action be taken to assign procurement of asphalt for the military in overseas areas to the agency having responsibility for centralized procurement of other petroleum products, i. e., the Defense Supply Agency.

(PL-7) Planning for contingencies provide for one of the following methods of reimbursement for POL to avoid detailed accounting in a combat area, specifying either:

- (a) POL be supplied by the Service responsible for interservice supply support for overseas areas on a nonreimbursable basis, or
- (b) Reimbursement be provided by all Services on a factored basis with handling losses prorated similar to procedures established in June 1968 in Vietnam.

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(PL-8) A Contracting Officer's Representative be assigned to any combat area where there is extensive use of in-country commercial service contracts. In the absence of a Contracting Officer's Representative, the Military Quality Assurance Representative be so designated.

(PL-9) Directives be clarified to fix unambiguously on Defense Supply Agency/Defense Fuel Supply Center responsibility for and surveillance over the administration of Defense Supply Agency contracts for supply of bulk petroleum and for services related thereto.

(PL-10) Defense Supply Agency/Defense Fuel Supply Center, in coordination with the military departments, develop and maintain compatible procedures, regulations, forms, and other documents for the supply, storage, distribution, and accounting of POL products.

(PL-11) Defense Supply Agency/Defense Fuel Supply Center, in coordination with the military departments, develop a POL Field Assistance Program to provide assistance and advice to installations and activities of the military services, other Department of Defense components, and contractor activities. The objectives of the Field Assistance Program are to evaluate management functions performed in the field; determine the adequacy of Defense Fuel Supply Center-sponsored procedures and regulations; identify problem areas and recommend preventive measures; identify actions necessary to improve effectiveness and economy; and provide military services and other Department of Defense components information and advice concerning problems requiring their attention for corrective actions. A proposed revision of Directive 4140.25 is in Appendix H of the POL Monograph, and when approved will implement recommendations (PL-9), (PL-10), and (PL-11).

(PL-12) The Joint Chiefs of Staff establish a Joint Petroleum Committee to:

(a) Advise and assist the Joint Chiefs of Staff in establishing priorities and allocations of petroleum products when required during periods of international tension and war.

(b) Resolve problems when the Services and the Defense Supply Agency cannot agree.

(c) Ensure the development and proper functioning of a Field Assistance Program.

(d) Monitor the responsibility assigned to the Defense Supply Agency in coordination with the military departments to standardize procedures, regulations, forms, and other documents for the supply, storage, distribution, transfer, and accounting for POL products.

(e) Review plans for the supply of POL in time of war.

(f) Recommend petroleum policies. A proposed charter for the Joint Petroleum Committee is in Appendix I of the POL Monograph.

(PL-13) As a matter of priority, the Defense Fuel Supply Center, in coordination with the military departments, establish a field assistance team to visit Vietnam, evaluate POL contract administration, and make specific recommendations to the Services and the Defense Supply Agency for improvement.

(PL-14) The Defense Supply Agency/Defense Fuel Supply Center, in coordination with the military departments and with the guidance of the Joint Petroleum Committee, if established, give high priority to the rewriting of existing instructions and directives. The purpose should be simplification and elimination of ambiguities regarding functions, responsibilities, duties, and relationships.

(PL-15) Services maintain a nucleus of qualified junior officers and senior noncommissioned officers with billets to maintain POL procurement inspection proficiency for responding to shifting workloads and for assignment in undesirable or hostile areas.

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(PL-16) Joint Directive DSAM 4220.1, AR 700-9100.5, AFR 67-142C, MCO 10340.16A, and NAVSUP PUB 5005 include, in the inspection assignment policy section, a statement indicating that to the extent practicable Procurement Quality Assurance inspection should be assigned so as to coincide with other logistic responsibilities.

(PL-17) The handy-size tanker program be implemented as soon as practicable.

(PL-18) A program to replace the old T-1 tankers and AOGs be implemented.

(PL-19) A single DOD agency (Defense Supply Agency/Defense Fuel Supply Center) be given full and sole authority for source selection and placing orders for large shipments of petroleum products to be moved by ocean-going tankers, except tankers operating on the Great Lakes, to meet the requirements of the military departments. The authority may be delegated by the Defense Supply Agency.

(PL-20) Except where ocean-going tanker shipments are involved, military departments retain the authority for source selection and ordering, and for the delegation of such authority as appropriate.

(PL-21) There be no changes in the authority of a military department to issue its own distribution plans.

(PL-22) Neither the management fund nor the DSA fuel stock fund be established.

(PL-23) No further consideration be given to Option 4.

(PL-24) In the case of bulk petroleum requiring shipment by ocean tanker, the Air Force place orders through the Defense Fuel Supply Center.

(PL-25) The five Air Force Fuels Field Offices should remain under operational control of the Air Force and continue to perform duties in the geographical areas as now assigned.

(PL-26) The consolidation of the Air Force Fuels Field Offices and their assignment to the Defense Fuel Supply Center is not recommended.

(PL-27) Some duplication is considered necessary to ensure proper and timely notification of all concerned with tanker lifting arrangements, and it should properly be a specifically assigned task to the Defense Fuel Supply Center to notify everyone concerned.

(PL-28) The Army and Navy should, where appropriate, attend the area annual review and investigate the use of similar local procedures used by Air Force/Office of Emergency Planning Regional Offices for the distribution of fuels under emergency conditions.

(PL-29) For a better insight of detailed local information as it affects the purchasing of petroleum products, a Defense Fuel Supply Center representative should attend the annual Distribution Plan Evaluation Conferences held at the Air Force Fuels Field Offices.



## **16. PROCUREMENT AND PRODUCTION RECOMMENDATIONS**

## **PROCUREMENT AND PRODUCTION RECOMMENDATIONS**

(PP-1) The Office of the Secretary of Defense endorse the continuation of the National Priorities and Defense Materials System as an administrative means of promptly mobilizing the industrial resources of the country for limited or general war.

(PP-2) The Office of the Secretary of Defense and the Business and Defense Services Administration:

(a) Provide for an education effort on priorities and allocations within the Department of Defense and Industry.

(b) Rewrite the basic Business Defense Services Administration regulations and Department of Defense Instruction 4410.1 (Priorities and Allocations Manual) in laymen's terms to simplify and clarify procedures and to promote greater understanding of the National Priorities and Defense Materials System within Government and industry.

(PP-3) The Assistant Secretary of Defense (Installation and Logistics) simplify the structure of the Armed Services Procurement Regulation and reduce the frequency of changes thereto. For example, separate editions of the Armed Services Procurement Regulation could be published for small purchase procedures, supply contracts, research and development contracts, and construction contracts. Changes could be published semiannually, unless there is a more urgent need on some specific issue.

(PP-4) The Assistant Secretary of Defense (Installation and Logistics) sponsor uniform training programs for major Armed Services Procurement Regulation policy changes to be accomplished prior to their effective date. In determining the effective date of a major change, time for training commensurate with the complexity of the change should be considered.

(PP-5) The Assistant Secretary of Defense (Installation and Logistics) take action to increase the dollar limit of small purchases from \$2,500 to \$10,000.

(PP-6) The military departments take action to ensure that procurement planning in support of contingency operations emphasizes the use of class determinations and findings.

(PP-7) The Services implement procedures fixing responsibility for setting forth the Government's obligations and for direction or coordination of actions needed to fulfill the Government's obligations.

(PP-8) Upon receipt of the purchase request, procurement offices initiate an in-house pre-award survey verifying that the Government can fulfill its obligations to be incorporated in the contract.

(PP-9) The administrative contracting officer intensify the administration of contracts to include and amplify those actions required by the Government as well as those of the contractor.

## **17. SUPPLY MANAGEMENT RECOMMENDATIONS**

## SUPPLY MANAGEMENT RECOMMENDATIONS

(SM-1) The Director, Defense Supply Agency, as the MILSTRIP administrator, keep changes in the Military Standard Requisitions and Issue Procedures to a minimum, particularly during contingency operations, to avoid confusion and misapplication at requisitioner level.

(SM-2) The Joint Logistic Commanders, in coordination with the Director, Defense Supply Agency, examine Service differences in MILSTRIP coding and make adjustments to facilitate interservice support.

(SM-3) The Office of the Secretary of Defense secure early and full participation by the General Services Administration in the MILSTEP information system to allow analysis of performance data of all suppliers supporting Department of Defense requirements.

(SM-4) The Office of the Secretary of Defense make provisions in DOD Instruction 4000.23 (MILSTEP), whereby the Military Sea Transportation Service, the Military Traffic Management and Terminal Service, and the Military Airlift Command are furnished MILSTEP in-transit summary reports for analysis and use in evaluating transportation performance and trends.

(SM-5) The Office of the Secretary of Defense, using Military Standard Evaluation Procedures as the vehicle, develop and adopt realistically attainable time standards to cover each significant element of the communications, supply, and transportation spectrum from time of requisition origin until the delivery of materiel to the ultimate consignee.

(SM-6) In addition to assignment and review of F/AD I, the Joint Chiefs of Staff periodically review assignments of F/AD II to preclude abuses and unwarranted escalations, with resultant increased competition for materiel and transportation.

(SM-7) The Office of the Secretary of Defense, with Service participation, prescribe use of urgency of need category C instead of D for replenishment requisitioning purposes and eliminate the latter category. This will, in turn, reduce the number of priority designators from 20 to 15, simplify selection and application of correct requisitioning priorities, and reduce the number of priority groups and transportation priorities from four to three.

(SM-8) The validation of priorities 01 through 08 requisitions, required prior to release to supply sources (to authenticate requirements for compressed processing time and high-speed transportation), be in the form of a significant entry in a specified requisition column, and that those not containing this validation be processed as Priority and Transportation Group Three requisitions and be moved by surface methods.

(SM-9) Special procedures be incorporated into the Uniform Materiel Movement and Issue Priority System for use during periods of emergencies that will clearly allow elevation of specific combat requirements and projects of the Joint Chiefs of Staff and Secretary of Defense above those having equal priority designators and that implementation and termination features be under control of the Joint Chiefs of Staff.

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(SM-10) That the Services, with due regard for the total costs involved, place increased dependence on air transportation for the movement of infrequently demanded items of materiel and consider air as the normal means of transporting selected commodities.

(SM-11) The Office of the Secretary of Defense develop and promulgate policies designed to:

(a) Hold in abeyance or strictly limit the migration of items among materiel managers during periods of hostilities.

(b) Limit catalog data element changes, particularly to those that have an impact on the requisitioner, e. g., unit of issues, during contingency operations.

(c) Restrict Federal stock number and other data element changes to a quarterly interval unless there are cogent reasons for an immediate change to minimize impact on the retail system.

(SM-12) The Services develop systems to tailor changes to the item carried at each level instead of broadcasting all changes to all users (dominant feature of USAF SNUD system). If computer-to-computer capability is not available, the advantages of micromation for broadcasting user-tailored catalog changes should be explored.

(SM-13) The Services not possessing a general-use catalog, develop and test a simplified, easy-to-read, tailored, limited-in-scope, range, and requisitioning authority "general-use" catalogs.

(SM-14) The Office of the Secretary of Defense take necessary action to enhance the capability of the Defense Automatic Addressing System to process and route electrically transmitted Military Standard Requisitioning and Issue Procedures part-numbered" requisitions.

(SM-15) The Services revise provisioning policies and procedures, to include procedures for provisioning within compressed time frames.

(SM-16) Provisioning be accomplished by the Services for commercial items, including war reserves, which are to be issued for use in combat areas to include the identification of items of supply, the establishment of data for catalog, technical manuals, allowance list preparation and the preparation of instructions to ensure delivery of necessary support items with related end items (including where appropriate, a "No-Buy" decision).

(SM-17) The procedures and techniques developed by the Services for providing push packages, or modified versions thereof, be made a part of established policies and procedures and provide that computation of requirements be equipment-oriented rather than force-oriented, the supplies be containerized and prebinned to the extent practicable, and the range be limited to high-demand items and essential items for selected critical systems.

(SM-18) Recognizing the potential benefits to be gained by increased asset visibility, the Services and the Defense Supply Agency take action to expedite the implementation of DOD Instruction 4140.37 as soon as practicable.

(SM-19) For the long range, the Services and the Defense Supply Agency plan to develop the capability to attain worldwide visibility of high-dollar value items for which this depth of visibility may be required, recognizing that the range and depth of visibility should be variable as selected by the Service concerned.

(SM-20) Because it is not necessary for the item manager to own an asset in order to have the visibility necessary to make or recommend appropriate decisions, the question of ownership of assets visible to an inventory manager should be decided by the Service concerned.

(SM-21) All Services reduce the stockage of demand supported consumable items of materiel, including repair parts, in forward operating locations to a range of items in accordance with the following:

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(a) Each Service should establish stringent targets of a specific number of frequencies of demand for an item to qualify for initial stockage and retention. The targets will vary by Service, activity, type of materiel, and combat environment.

(b) During the early stages of a contingency, when facilities and personnel are at best marginal, the criteria for stockage should be particularly stringent and could then be relaxed to the extent that economy and capacity to handle materiel and data warrant.

(c) Special stockage criteria will be required for special categories of materiel, such as, shelf-life items, high-value items, seasonal items, planned program items, and items with special storage requirements.

(d) Initial stockage of items newly introduced into the Service's supply systems should be added to the overseas supply point's stock list only if their anticipated usage meets the criterion for initial stockage as specified above.

(e) Items not meeting the prescribed retention criteria will be reported to the applicable inventory manager in accordance with Service procedures.

(SM-22) The Services establish policies and procedures to limit the range and quantity of nonessential housekeeping and administrative materiel (such as paints, furniture, and certain paper products) authorized to be requisitioned by units in overseas areas to the minimum required for essential administration and troop support. Special justification should be required for unauthorized items. Service procedures could be in the form of catalogues tailored for a specific overseas area(s), allowance lists related to assigned logistic support missions, or the use of item identifiers in Service master item data files.

(SM-23) The Army make greater use of Country Store and Self Service Supply Center techniques to make available selected repair parts and other consumables to the user units in overseas areas.

(SM-24) All Services limit intermediate echelons of supply with a normal goal of not more than one intermediate echelon between the overseas support elements supporting operating units and the CONUS wholesale system.

(SM-25) Army plans provide that when a contingency operation appears imminent an experienced logistic commander with rank appropriate to the anticipated scope of operations will be designated. He should be provided a nucleus staff and both should be located with the headquarters of the prospective operation or as near as possible.

(SM-26) The Services in their ongoing efforts to improve supply operations explore the concepts of the stockage criteria model technique outlined in Chapter VII to determine the validity of its application to determining stockage criteria for overseas activities.

(SM-27) The Office of the Secretary of Defense revise the Uniform Military Movements and Issue Priority System (UMMIPS) to extend the criteria for air transportation to permit the Services, in accordance with criteria that they establish, to code for air transportation those requisitions for selected items of Class VIII medical supplies and Class IX repair parts not normally stocked overseas. Such coding should be permitted on a routine basis without being subject to challenge except for apparent excess quantities.

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(SM-28) All Services restrict the stockage of nondemand-supported insurance and mission-essential items of materiel in forward operating locations with reliance on air transportation to respond to overseas requirements for these types of materiel.

(SM-29) The Services, with due regard for the total costs involved, place increased dependence on air transportation for the movement of infrequently demanded items of materiel in addition to considering air as the normal means of transporting selected commodities such as high-dollar and reparable items of materiel.

(SM-30) Increased dependence on air transportation for the movement of materiel be accompanied by concurrent reductions in the requirements for logistic resources in overseas areas.

(SM-31) For contingency operations each Service should have available Automatic Data Processing System (ADPS) packages compatible with the CONUS system with which they must interface. These ADPS packages should include transportable ADPE, proven programs, data transmission equipment, and trained personnel, and must be so designed that they can be readily expanded to meet unforeseen requirements without major problems in translation to greater capacity. Contingency plans should provide for early deployment of an ADPS package adequate to meet forecasted in-country logistics management requirements, with a reasonable safety factor to meet unforeseen demands.

(SM-32) The Services develop methods of establishing initial-essential supply storage facilities capable of being erected and outfitted in minimum time without reliance on standard construction programs. The Army's Containerized Depot—Project YZJ, the Navy's Advanced Base Functional Components, the Marine Corps' Expeditionary Air Field, and the Air Force's Project Coronet Bare concept suggest methods that should be exploited and developed. A possible means of providing initial minimum-essential supply storage facilities include prepackaged mobile depots, vans, binned containers, semipermanent quick-erect structures, landing matting, portable reefer units, floating storage, and rapid soil stabilization techniques. The Services should include such capabilities in planning for contingencies.

(SM-33) The Services specifically provide for selected materials handling equipment and supporting repair parts in planning for contingencies. This equipment should include short-mast and electric-powered forklifts and the 6,000-lb., 10,000-lb., and 15,000-lb. capacity rough-terrain forklifts.

(SM-34) The Joint Logistic Commanders recommend a joint program to standardize among the Services and to reduce, to the maximum extent practicable, the number of makes and models of construction and materials handling equipment as well as other jointly used items of major commercial equipment. In the development of this program the substantial progress achieved in the Mobile Electric Power Project should be noted. Two complementary courses of actions should be considered:

(a) Increase use of multiyear contracts; authorize limited-bidder competition; and expand criteria for the granting of Determinations and Findings for sole source procurements.

(b) Commonality of equipment within designated geographical areas.

(SM-35) The Army continue to maintain Logistic Control Offices and a central logistic data bank with the capability to provide timely and pertinent logistic intelligence for worldwide overseas Army responsibility materiel movements.

(SM-36) The Services establish a system for ready identification of supply personnel qualified in each of the functional elements of wholesale supply operations.

(SM-37) The Services ensure that career development programs and the associated CONUS training base are aligned to meet worldwide requirements, including the support of

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contingency plans, and provide a sustaining base for military skills required to support key officer, warrant officer, and enlisted personnel needed in overseas supply support activities.

(SM-38) Assign to Deputy Chief of Staff for Logistics, Department of the Army, policy responsibility for developing Army-wide qualitative and quantitative requirements for, and capabilities to provide, trained officer, warrant officer, enlisted, and civilian logisticians. This responsibility to include maintaining staff cognizance over logistic officer, warrant officer, enlisted, and civilian personnel management.

(SM-39) The Army designate spaces to be filled by supply warrant officers at echelons of supply management above the divisions direct support level. This would enhance supply management capabilities by providing a nucleus of highly specialized technicians with the required expertise in supply management throughout the supply distribution system.



## **18. TRANSPORTATION AND MOVEMENT CONTROL RECOMMENDATIONS**

## **TRANSPORTATION AND MOVEMENT CONTROL RECOMMENDATIONS**

(TR-1) The Joint Chiefs of Staff revise their procedures for the submission of movement requirements (Chapter 1 of SM-680-68) to incorporate specific provisions for revising such requirements during periods of heightened tension.

(TR-2) Mobility planning guidance of the Joint Chiefs of Staff for contingencies short of general war provide for the alternative of augmenting the lift capabilities of the Military Airlift Command and the Military Sea Transportation Service by contractual means in the event that mobilization of Reserve and commercial resources is not authorized.

(TR-3) The Services reevaluate their systems for estimating movement requirements in light of the Vietnam experience to ensure a greater degree of reliability during periods of heightened tension, with particular regard to requirements for specialized surface lift and outsized airlift during the deployment phase.

(TR-4) The Joint Chiefs of Staff continue to provide for a Joint Transportation Board which could become operational on short notice during periods of heightened tension.

(TR-5) The recommendation contained in Chapter VII, paragraph 5b(1) of the Ammunition Monograph be supported. The recommendation is quoted below:

(TR-6) The Secretary of Defense support modernization programs for military ocean terminals (including ammunition terminals) in order to provide necessary facilities to accommodate containerized shipping.

(TR-7) Plans for moving retrograde cargo include providing the capability and requiring overseas commanders to decontaminate cargo in accordance with existing directives.

(TR-8) The Secretary of Defense approve the dedicated port concept proposed by the Military Traffic Management and Terminal Service.

(TR-9) The Joint Chiefs of Staff establish positive procedures to ensure that the commanders of unified commands determine realistic cargo reception and clearance capabilities in connection with their contingency planning, that those commanders and the Services consider those capabilities in determining the phasing of their equipment and supply requirements, and that ships not be sailed to the contingency area unless they can be unloaded expeditiously.

(TR-10) The Secretary of Defense support necessary legislation to authorize long-term build and charter commitments so that the multipurpose ships and handy-sized tankers now in the Five Year Defense Program (FYDP) as the initial increment of the Military Sea Transportation Service fleet modernization program may be constructed by commercial interests and chartered to the Military Sea Transportation Service.

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(TR-11) The Joint Chiefs of Staff determine the numbers of multipurpose ships, medium-sized container ships, barge-carrying ships, and handy-sized tankers which must be in the Military Sea Transportation Service fleet to provide peacetime sealift support to U. S. forces and to meet surge requirements for contingency operations until such time as additional shipping support can be mobilized and made operational.

(TR-12) The Joint Chiefs of Staff reexamine the wartime requirement for troop-ships.

(TR-13) The Secretary of Defense seek to have the legislation stemming from the President's Merchant Marine Program include positive provision for ensuring the responsiveness of modern U. S. flag merchant ships, with appropriate national defense features, to meet military requirements under various conditions of emergency.

(TR-14) The Secretary of Defense include in future Five Year Defense Programs positive provision for a follow-on program of modernization for the Military Sea Transportation Service fleet, with due regard to the advantages of Government ownership versus charter of mobility resources.

(TR-15) A military airlift clearance authority be continued to provide for positive control of the flow of air cargo into the aerial ports of embarkation to preclude saturation of airlift capability resources.

(TR-16) In contingency situations in which the use of U. S. commercial augmentation airlift is anticipated, the Secretary of Defense initiate prompt action through the Department of State to obtain necessary overflight and air landing agreements with nations concerned.

(TR-17) Support the recommendation contained in Chapter VII, Section C, of the Supply Management Monograph as it pertains to materials handling equipment. The recommendation contained in the Supply Management Monograph is quoted below:

"That the Joint Material/Logistic Commanders recommend a joint program to standardize among the Services and to reduce, to the maximum extent practicable, the number of makes and models of construction and materials handling equipment as well as other jointly-used items of major commercial equipment. In the development of this program the substantial progress achieved in the Mobile Electric Power Project should be noted. Two complementary courses of action should be considered:

(a) Increased use of multi-year contracts and limited bidder competition as well as expanded criteria for the granting of Determinations and Findings for sole source procurement.

(b) Commonality of equipment within designated geographical areas."

(TR-18) Based on the experience gained from using inland Aerial Ports of Embarkation during the Vietnam era, that the Air Force, in coordination with the other Services and the Defense Supply Agency, identify Aerial Port of Embarkation locations planned to be established in the large cargo generation areas in support of specific contingency operations.

(19) The Services actively pursue and complete ongoing studies concerning the revision of Service logistic systems in order that logistic support is provided effectively and economically and is consistent with the advantages provided by the C-5 airlift capability.

(TR-20) See recommendation Section B, Chapter IV, concerning organizations and procedures for movement control.

(TR-21) See recommendation (7) c, Section E, Chapter III, concerning standardization of materials handling equipment.

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(TR-22) Planning for support of terminal operations be based on the employment of a minimum hard-core of military port operating units augmented to the maximum extent practicable with contractor support.

(TR-23) The Army and Navy initiate positive programs for modernizing their deteriorating fleet of lighters, harbor craft, and other shallow-draft shipping. Both Services should evaluate the results of the Army's Trans-Hydro Craft study and other related studies, with the objective of determining the optimum types and mix of craft required for logistics purposes.

(TR-24) The Army maintain training programs for military personnel in the port operations and marine fields capable of rapid expansion in an emergency. Planning should take into account the anticipated loss of units which will be required in initial developments.

(TR-25) The Navy retain its cargo-handling battalions and nucleus port crews, with the mission for the latter extended to include provision for operating undeveloped ports in support of the fleet and Marine forces.

(TR-26) Based on the Vietnam experience, the Department of the Army review current doctrine with regard to (logistics-over-the-shore) operations and the incorporate the planned use of mobile/prefabricated piers, when applicable, within the first 60 days of operations.

(TR-27) The Department of the Army identify in contingency plans the number of piers required to support the plan.

(TR-28) Mobile and/or prefabricated piers be procured and pre-positioned to support approved contingency plans.

(TR-29) Usable De Long piers in SE Asia be retrieved as they become available and retained as part of our pre-positioned war reserve stocks.

(TR-30) The Department of the Army evaluate the degraded capability of truck units in counterinsurgency operations based upon Vietnam experiences. Based upon this evaluation, the Department of the Army amend current truck units TO&Es to authorize additional personnel and equipment to offset the reduced capability or reduce the stated capabilities of such units when engaged in counterinsurgency operations.

(TR-31) The Department of the Army reevaluate the mix of light and medium non-divisional truck units in view of the increased capability provided by the medium trucks without any increase in the number of personnel or prime movers.

(TR-32) The Department of the Army examine the desirability of replacing the 2 1/2-ton trucks with 5-ton trucks in both the logistical (cargo movement) and tactical (troop transporting) roles. (It is recognized that a 5-ton truck can transport twice as many tons but it cannot transport twice as many passengers. Therefore, the 2 1/2-ton truck cannot be replaced two for one across the board.)

(TR-33) Appropriate Department of the Army field manuals be amended to include depot receiving capabilities as a separate factor in the formula used for the determination of terminal throughput capabilities.

(TR-34) The Department of the Army equip all straight body 2 1/2-ton and 5-ton trucks with drop-sides to facilitate multiple side-loading and unloading with materials handling equipment.

(TR-35) The Department of the Army require all future procurements of 2 1/2-ton and 5-ton trucks be equipped with drop sides.

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(TR-36) The Department of the Army provide motor transport units with some heavy-lift low-bed type trailers as required for assignment to port and beach clearance in future contingency operations.

(TR-37) The Department of the Army evaluate the future requirements for high payload carriers capable of transporting heavy and outsized cargo in deep sand for use in logistics-over-the-shore operations.

(TR-38) When commercial augmentation of military transport is planned, the Services ensure that a proper balance of commercial- and Government-owned equipment is maintained to provide for continuity of operations in emergency situations.

(TR-39) Contingency plans include provisions for complete military manning of all phases of transportation operations in areas of the world where civilian hirees are not expected to be available.

(TR-40) The Department of the Army adopt GOER vehicles as standard special purpose vehicles for rough terrain or cross-country operations.

(TR-41) The Department of the Air Force adopt the shuttle force concept of providing tactical airlift support as a normal means of operation in future contingencies.

(TR-42) The Services include in their planning the requirement to provide highly responsive communications for support of tactical airlift in future contingencies.

(TR-43) The Department of the Air Force support the development and procurement of transport type aircraft and short takeoff and landing capabilities as replacements for the C-7A/C-123 aircraft for future land contingency operations.

(TR-44) The Office of the Secretary of Defense support the programs of the Services to provide a heavy-lift helicopter capable of transporting cargo and containers from ship to shore and to isolated forward areas in future contingency operations.

(TR-45) The Department of the Army incorporate the experience gained in Vietnam in the development of its modernization program for lighters and shallow-draft logistical craft.

(TR-46) In establishing future requirements for shallow-draft vessels for logistical support, the Departments of the Army and the Navy include small tank landing ships and beach discharge lighters.

(TR-47) The requirement to fulfill tasks imposed by contingency plans be considered in the Navy's retention and modernization program for craft.

(TR-48) Each commander of a unified command review his organization for movement control and coordination and, where necessary, revise his organization to incorporate agencies and procedures similar to those in the Pacific Command, to limit the flow of material to a level commensurate with throughput capability, lift capabilities and command requirements. Coordination and control procedures and a nucleus staff for these agencies should be activated and maintained in peacetime.

(TR-49) The Joint Chiefs of Staff through the Office of the Secretary of Defense initiate procedures with the appropriate U. S. Government agencies to ensure that the commanders of unified commands will have gross knowledge of all programmed shipments into their areas of responsibility; and that control procedures be developed to encompass all such shipments within and external to the Defense Transportation System.

(TR-50) The export release time standards contained in the Military Standard Transportation and Movement Procedures be extended for nonurgent material in order to provide

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the necessary flexibility in export traffic release procedures, and still be completely responsive to shipper movement requirements.

(TR-51) The Secretary of Defense ensure the adoption of joint procedures between the Military Traffic Management and Terminal Service and the Military Sea Transportation Service, which will ensure concurrent offering, acceptance, booking, and release of export surface cargo.

(TR-52) All Services and agencies conduct training classes of responsible transportation and supply personnel in MILSTRIP/MILSTAMP procedures in order to promote a better understanding of the systems and reduce the commission of errors throughout the system; that compliance with MILSTRIP/MILSTAMP procedures be made an item of interest in command and inspector general inspections.

(TR-53) The Army Logistic Control Office-Pacific and the Air Force Cargo Management Division capability for capturing information regarding identification and location of supplies in the transportation system be retained in peacetime.

(TR-54) The Joint Chiefs of Staff assign to the Commander in Chief, United States Strike Command, the continuing mission of planning, controlling, and coordinating the deployment of CONUS-based Army and Air Force units during the implementation of contingency plans.